



Internal Audit Committee of Brevard County, Florida

Internal Audit

Phase I

Information Technology Planning and Organization

**Prepared By:
Internal Auditors of Brevard County
May 15, 2006**

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May 17, 2006

The Audit Committee of
Brevard County, Florida
2700 Judge Fran Jamieson Way
Viera, Florida 32940-6699

Pursuant to the approved 2005/2005 internal audit plan, we hereby submit our internal audit report covering Information Technology (IT) Planning and Organization. We will be presenting this report to the Audit Committee at the next scheduled meeting on May 26, 2006.

Our IT audit team developed a three phase approach to provide a comprehensive and efficient method to audit Brevard County's Information Technology (IT) processes.

- Phase I Planning and Organization
- Phase II: IT Acquisition and Implementation (Hardware/firmware, Operating System, Telecom and Application software)
- Phase III: IT Delivery and Support and Monitoring and Evaluation

These phases are based upon the Control Objectives for Information Related Technology (Cobit) and Committee of Sponsoring Organizations (COSO) frameworks that are generally accepted practices to reasonably assuring adequate and effective IT governance and operations.

Our report is organized in the following sections:

Background	This provides an overview of Information Systems Services and related issues.
Objectives and Approach	The internal audit objectives and focus are expanded upon in this section as well as a review of the various phases of our approach.
Issues and Recommendations	This section contains an overview, a summary of results, any issues identified as well as management response and action plan.

We would like to thank the various departments and all those involved in assisting the Internal Auditors regarding this report on Information Systems Services.

Respectfully Submitted,

INTERNAL AUDITORS

Background

Background

What Services do the Brevard County Information Systems provide?

There are many definitions of what “information system” means. A common definition was developed by the Technical Subcommittee on Performance and Signal Processing as part of the American National Standard (ANS) and approved by the Federal Telecommunication Standards Committee. There are two parts to the definition as follows:

- A system, whether automated or manual, that comprises people, machines, and/or methods organized to collect, process, transmit, and disseminate data that represent user information.
- The entire infrastructure, organization, personnel, and components for the collection, processing, storage, transmission, display, dissemination, and disposition of information.

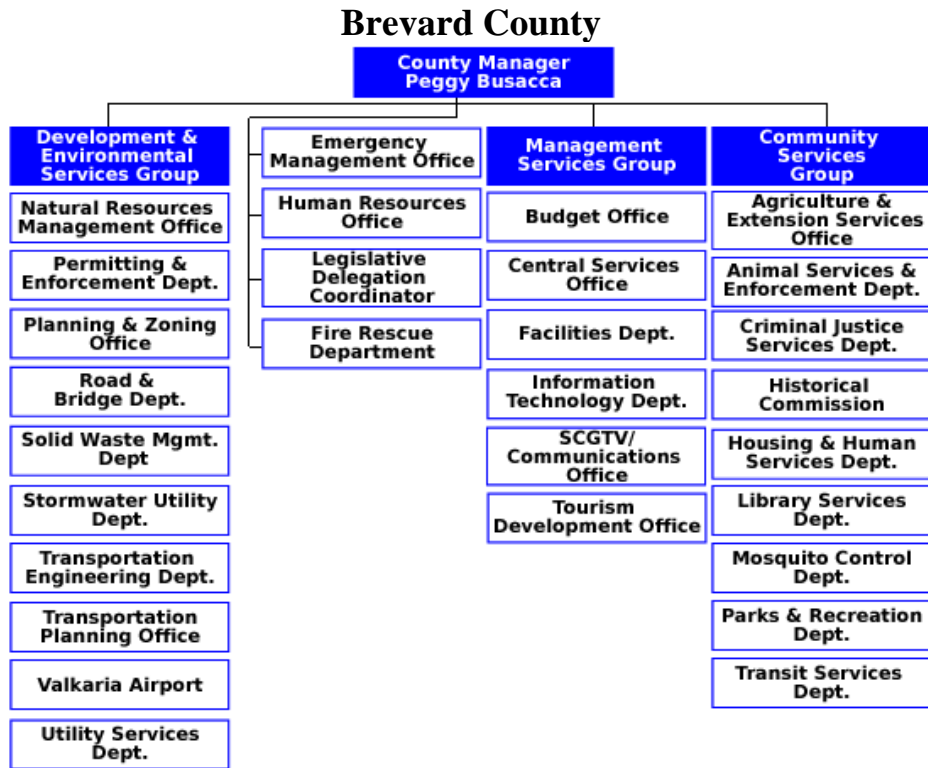
The mechanisms used to operate an integrated information systems are encompassed in Information Technology (IT). Currently, Brevard County has in excess of 2000 telecommunication and computer end users in the 29 county departments, and the IT functions are decentralized and spread across many of these departments. There is a county IT Department that currently has the following functional responsibilities:

- Telephone System Support - Provides telephone, wireless and other forms of communication services for employees.
- Emergency 911 System Support - Supports and maintains the infrastructure that ensures the reliability of the 911 system.
- Network Support - Provides a secure infrastructure for data communication within and outside of departments.
- Help Desk Support - Ensures county employees are able to have problems resolved with computer equipment. PC technicians install, update and maintain equipment.
- Application Development - Provides automation that allows government employees to do their jobs more efficiently. Provides applications, such as building permit search for citizens.
- Web Development - Hosts, develops and maintains 45+ websites. Provides technical expertise to other departments. Provides flexible content management services to meet employee and citizen needs.

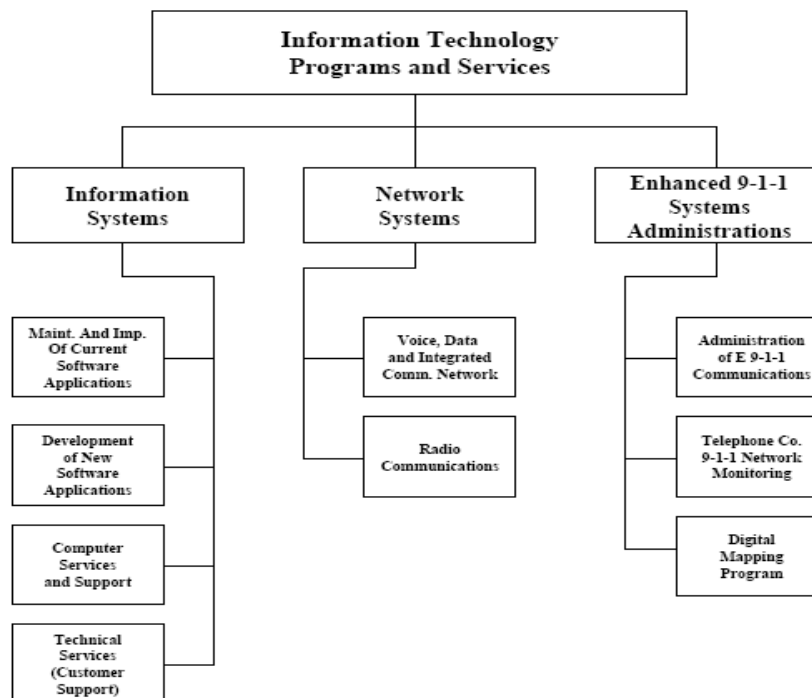
At least 10 other county departments are providing similar IT network support for their own departments.

Background - continued

Organization Charts



Information Technology Department



Background - continued

Staffing and Responsibility

Jon Sellers is the Director of the Information Technology Department (ITD) and has been in this position since November 2005 and worked for Brevard County ITD for over ten years. He has over 20 year experience in both private and public sector IT operations. Prior to assuming his current position, Mr. Sellers was the Manager of the Brevard County Information Systems group.

ITD has a current budgeted headcount of 42 employees who provide technical support through the Help Desk and Technology Support Staff, but has limited direct responsibility for maintaining county networks, computers and software. At least 10 of the 29 county agencies have their own IT staff. These non-ITD employees are department based and report to their department directors. These department positions are outside the purview of the ITD.

The following is a brief description of the different units and their responsibilities:

Information Systems	Manager – Jose Garcia
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- Eighteen employees budgeted
- SAP R3 Financial Management System
- Property Management Information Systems
- Other Services: PC Support, Internet hosting, MS Licensing, and other software development

E911	Manager – Steve O’Conner
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- Six employees budgeted and on staff
- Wireless 9-1-1 Location: Locate wireless callers by providing an accurate spatial mapping system
- Landline 9-1-1 Location: Locate wire line callers by providing an accurate database and selective routing system

Network Systems	Manager – Open
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- Nineteen employees budgeted
- Telephone and Personal Computer Service
- Maintain Voice and Data Connections
- Maintain and service radios, cell phones and pagers

Background - continued

Financial and Statistical Data

The allocation of technology dollars related to hardware and software for each county department is based on each departments operational needs and funding sources (general fund, grants, special taxes, and user fees).

The operating budget for ITD is as indicated in the table below:

	<u>Final Budget</u> <u>FY 2004-2005</u>	<u>Adopted</u> <u>Budget</u> <u>FY 2005-2006</u>
Expenditures:		
Compensation and Benefits	\$ 2,507,827	\$ 2,686,258
Operating Expncese	5,194,092	6,881,747
Capital Expenditures	<u>3,352,825</u>	<u>255,993</u>
Operating Expenditures:	<u>11,054,744</u>	<u>9,823,998</u>
Debt Service	70,000	62,000
Reserves - Operating	572,334	550,000
Reserves - Capital	1,496,291	920,885
Reserves - Restricted	-	-
Transfers	<u>208,200</u>	<u>-</u>
Non-Operating Expenditures:	<u>2,346,825</u>	<u>1,532,885</u>
Total Expenditures	<u><u>\$ 13,401,569</u></u>	<u><u>\$ 11,356,883</u></u>

Currently there is no county-wide Information Technology Plan; therefore county-wide total Information Technology operational costs could not be readily assessed.

Objectives and Approach

Objectives and Approach

Objectives

<input type="checkbox"/> To identify opportunities for improvement/enhancement of Information Technology operations within Brevard County.
<input type="checkbox"/> To identify efficiencies and cost savings opportunities.
<input type="checkbox"/> To determine if Information Technology governance processes are in place to reasonably assure internal controls can operate effectively and efficiently to meet County operational requirements.
<input type="checkbox"/> IT Organization, Relationships and Processes
<input type="checkbox"/> Information Architecture Identified and Defined
<input type="checkbox"/> IT Risk Assessment and Management
<input type="checkbox"/> Technological Direction and Standards
<input type="checkbox"/> Strategic IT Planning
<input type="checkbox"/> IT Human Resource Management
<input type="checkbox"/> IT Investment Management
<input type="checkbox"/> IT Project and Change Management
<input type="checkbox"/> IT process quality

Approach

Our audit approach consisted of three phases as follows:

Understanding and Documenting of Process

We conducted interviews with the Assistant County Manager Management Services, the Director of the Information Technology Department (ITD) and the different managers and staff within ITD. We discussed the scope and objectives of the audit work, obtained preliminary data, and established working arrangements. We also obtained organizations charts and other information as deemed necessary. Our discussions with ITD management disclosed that this is the first IT audit conducted at a county-wide level.

Testing

In order to meet our outlined objectives we conducted testing of the 9 key Planning and Organization control objectives throughout the county departments. We conducted extensive interviews with ITD management, administrative staff, and technology support staff. In addition we conducted an interview of one County Commissioner.

Reporting

During this phase, we summarized our findings and conducted an exit interview with the County Manager, Assistant County Manager for Management Services, and the Director of the IT Department where we discussed the issues identified. Management's response to these issues has been included in this report.

Issues and Recommended Action

Rating	Issues	Recommendation	Management Response	Status
IT Organization, Relationships and Processes				
	<p>1. <i>IT organizational structure defined including committees and linkages to the stakeholders and vendors</i></p>			
	<p>The Brevard County IT Department is a subordinate organization to the of the Management Services group (reports directly to the Assistant County Manager of the Management Services Group). The Information Technology department is comprised of the following:</p> <ul style="list-style-type: none"> • Client Services • Voice Communications • Telecommunications (systems, database, and network administration) • Software development • 911 Administration <p>Our review of the county organization chart and discussions with management disclosed examples of organizations that provide similar IT support for their own departments:</p> <ul style="list-style-type: none"> • Utility Services • Permit & Enforcement • Fire Rescue • Library Services • Solid Waste • Road & Bridge • Natural Resources • Animal Services • Parks & Recreation • Transit 	<p>Develop and issue an administrative order that establishes the Director of the IT Department as the senior IT authority for Brevard County. The IT Department Director should be charged with the responsibility for strategic and operational control of the County's IT infrastructure and operations.</p> <p>Each agency's existing IT staff (IT Representatives-ITRs) should be required to interface directly with the ITD Chief ITR to perform the following:</p> <ul style="list-style-type: none"> • Coordinate and establish operational requirements • Establish and participate in the IT Strategic Planning and Steering Committee. • Development of county-wide IT risk, operations, security, and data management policies, procedures and practices. • Coordinate IT operations and service budgeting and cost data for overall roll-up of IT total cost of operations. 	<p>Response: Management has accepted recommendations.</p> <p>ECD: September 30, 2006</p> <p>Person Responsible: Jon Sellers Director Information Technology Department</p> <p>Ms. Peggy Busacca County Manager</p>	<p>Open</p>

Rating	Issues	Recommendation	Management Response	Status
IT Organization, Relationships and Processes				
1.	<i>Continued</i>			
	<p>The following segments of the Brevard County IT infrastructure are not under control of ITD and the hardware and network operating systems within these segments could not be readily defined:</p> <ul style="list-style-type: none"> • Code Enforcement • Court Alternatives • Water Resources • Fire Rescue Department • Emergency Operation Center • Planning and Zoning Office <p>Review of trouble calls, budgets, and the 2005 strategic plan disclosed divergent and duplicative IT goals and objectives that have resulted in conflicts in critical application operations:</p> <ul style="list-style-type: none"> • Conflicts - Six different organizations run varied versions (3.3 to 9.0) of Geographical Information Systems (GIS). Recently, the Planning and Zoning Office version 3.3 would no longer interface with the version being run by Property Appraiser, resulting in service degradation. This condition is due to a combination of both a lack of Planning and Zoning Office funding for GIS upgrades and county-wide planning to assure interoperability of like software between departments and agencies. • Security - Staff from a county department has administrative rights and misconfigured the servers creating a denial of service for all 450+ network connections within Building A. 	<p>A more centralized approach leveraged with the integration of existing IT specialists in each county agency would reasonably assure Brevard County's IT infrastructure and operations will realize the following goals:</p> <ul style="list-style-type: none"> • Interoperability of systems and applications between all agencies within the county to the greatest extent practical. This will enhance the ability of services to be more fully automated while reducing human error during data processes. • Enhanced business continuity by leveraging county IT resources (IT infrastructure and labor) across all agencies. • Lower costs of acquisition and maintenance based on economy of scales and purchasing power. • Allow top level policies and procedures to be used across all County agencies to prevent conflict or duplication of accepted practices • Clear view of Brevard County's IT county-wide total cost of operations. 		

Rating	Issues	Recommendation	Management Response	Status
IT Organization, Relationships and Processes				
	<p>2. <i>Documented relationships with various other interests inside and outside the IT function</i></p>			
	<p>During our preliminary review, IT management did not have an inventory of relationships with other interest inside and outside of the IT function. However, during our documentation of planning and organization controls, the IT department completed an inventory of these <u>relationships</u>. Further review of this inventory disclosed the following organizations that are not integrated within the County IT department:</p> <ul style="list-style-type: none"> • Library Services, and Fire Rescue Departments also provide their own network, software applications, web services, PC's and help desk. • The Criminal Justice Services, Medical Examiners Office, and Transit Services Department provide their own help desk. 	<p>See Risk 1, Item 1 above</p>	<p>Response: Management has accepted recommendations.</p> <p>ECD: September 30, 2006</p> <p>Person Responsible: Jon Sellers Director Information Technology Department</p> <p>Ms. Peggy Busacca County Manager</p>	<p>Open</p>

Rating	Issues	Recommendation	Management Response	Status
IT Organization, Relationships and Processes				
3.	IT strategy and steering committees			
	<p>There are no county-wide strategy and steering committees to guide IT policies, procedures or practices.</p> <ul style="list-style-type: none"> • Strategic IT Planning <ul style="list-style-type: none"> ○ Linking business goals to IT goals ○ Critical dependencies and current performance identified and measured ○ IT strategic (five year plan) and tactical (current year) plan development communication ○ Manage project and service portfolios • IT Technology Standards and Direction <ul style="list-style-type: none"> ○ Technology infrastructure plan created and maintained ○ Technology standards created and maintained ○ Technology evolution monitoring ○ Obsolescence planning (aging hardware and software replacement) <p>During our preliminary review, ITD management did not have a written county-wide inventory of current projects. However, during our documentation of planning and organization controls, the IT department completed an inventory of projects. Our review of the projects disclosed:</p> <ul style="list-style-type: none"> • Several wireless network deployments; without established standards • One web applications that is processing financial transactions • At least two different (Fire Rescue and Transpiration Engineering) asset management applications 	<p>Once the corrective action for Risk 1, Item 1 has been completed, ITD should charter (approved by the County Manager) and establish an IT Strategy and Steering Committee that will perform the following tasks:</p> <ul style="list-style-type: none"> • Develop and promulgate IT/Telecommunications hardware and software standards • Review and provide recommendations regarding non-standard hardware and software procurement • Monitoring new technologies and develop integrated obsolescence plans for the county-wide (standard communication, network, server, workstation, and portable device hardware and software). 	<p>Response: Management has accepted recommendations and is leveraging these corrective actions with the development and issuance of the administrative order in response to Issue 1.</p> <p>ECD: September 30, 2006</p> <p>Person Responsible: Jon Sellers Director of Information Technology Department</p>	<p>Open</p>

Rating	Issues	Recommendation	Management Response	Status
IT Organization, Relationships and Processes				
4.	Identified and defined and systems owners and data owners			
	<p>During our review, management did not have an inventory of systems and data owners. In response to this exception, the IT department completed a preliminary inventory of systems and data owners.</p> <p>The preliminary inventory, disclosed that ITD does not have a point of contact for five departments and their respective applications:</p> <ul style="list-style-type: none"> • Code Enforcement - Comply - Complaint Tracking • Community Services - Court Alternatives • EOC <ul style="list-style-type: none"> ○ EM2000 - EM Response ○ Huratrak - Hurricane Tracking ○ Huravac - Hurricane Tracking ○ ENET/SATCOM - Satellite Weather Tracking ○ MITAGATION20/20 - Disaster migration DB ○ Barrons Services Inc. - Severe Weather Tracking ○ Marplots ○ EMWin ○ Communicator NXT - Call Notification ○ E-TEAM - EM Response ○ GEOCAST - Provides access to Communicator NXT ○ GIS ○ TIM - Transportation Information Management 	<p>Once the corrective action for Risk 1, Item 1 has been completed, ITD should perform an annual inventory of all major agency applications (non-standard loads) to maintain a current inventory of both applications and data owners. This will be used in strategic and tactical planning for both near term maintenance and upgrade and long term replacement requirements.</p>	<p>Response: Management has accepted recommendations.</p> <p>ECD: September 30, 2006</p> <p>Person Responsible: Jon Sellers Director of Information Technology Department</p>	Open

Rating	Issues	Recommendation	Management Response	Status
IT Organization, Relationships and Processes				
5.	<p><i>Identified and defined IT process Policies and procedures</i></p>			
	<p>Although the majority of operations, security, and data management functions are being performed, there are no county-wide IT policies and procedures for the following processes:</p> <p>Operation management</p> <ul style="list-style-type: none"> • IT governance (hardware, software, and communication standards) • Regulatory compliance (Privacy and Security) • Monitoring and evaluating IT internal controls • Acquiring, installing and maintaining IT assets including hardware, application software, network devices, manage changes and configurations • User and operational manuals and training materials • Management of scheduled processing (backup, batch processes and other scheduled deliverables) • Preventative maintenance of hardware • Operational continuity and recovery plans • Providing and maintaining a suitable physical environment to protect IT assets from access, damage or theft • Manage performance, capacity, and service levels 	<p>Once the corrective action for Risk 1, Item 1 has been completed, ITD (with input from the interagency steering committee) should develop standardized processes and issue policies and procedures and that address the key internal controls over the areas listed in the column to the left:</p> <ul style="list-style-type: none"> • Operations Management • Security Management • Data management <p>Key to these procedures is to keep these documents high enough level to allow individual agencies to implement within their operations with the maximum flexibility and still provide reasonable assurance that operational and security objectives are met.</p>	<p>Response: Management has accepted recommendations and is leveraging these corrective actions with the development and issuance of the administrative order in response to Issue 1.</p> <p>ECD: ITD policies are scheduled to be developed by December 31, 2006 and rolled out county-wide per a project plan matrix. Final corrective actions are scheduled to be completed by December 31, 2008.</p> <p>Person Responsible: Jon Sellers Director of Information Technology Department</p>	<p>Open</p>

Rating	Issues	Recommendation	Management Response	Status
IT Organization, Relationships and Processes				
5.	<i>Continued</i>			
	<p>Security management</p> <ul style="list-style-type: none"> • Responsibilities for IT Security management • IT Security Policies, Procedures, Standards including: <ul style="list-style-type: none"> ○ Acceptable use ○ IT Security Plans ○ Identity Management ○ User Account Management ○ Security Testing ○ Security Standards ○ Protection of Security Technology ○ Malicious Software Prevention, Detection and Correction ○ Network Security ○ Exchange of Sensitive Data ○ Surveillance and Monitoring of network and user activity ○ Detecting, Reporting, and Resolving Security Vulnerabilities and Incidents <p>Data management</p> <ul style="list-style-type: none"> • Classification of data-sensitivity and mission criticality • Maintaining a data dictionary to facilitate use of existing data between agencies and prevent duplication of efforts. • Protection of sensitive output • Manage the media library • Proper disposal of media 			

Rating	Issues	Recommendation	Management Response	Status
IT Human Resources Management				
	<p>6. <i>Identify and document: IT skills, position descriptions, roles and responsibilities, level of supervision, segregation of duties, terms and conditions and personal performance benchmarks</i></p>			
	<p><i>Employment terms and conditions</i> Merritt System (MS) Policy 06 - General Terms & Conditions of Employment and MS Procedure 06 - General Terms & Conditions of Employment do not address IT acceptable use policies.</p>	<p>A county-wide IT policy and procedure should be developed and established to include adherence to IT acceptable use policies. Specifically, all current and new employees will be provided a copy of and sign an employee IT acceptable use form.</p> <p>This document will be retained by either HR or the department.</p>	<p>Response: Management has accepted recommendations.</p> <p>ECD: July 30, 2006</p> <p>Person Responsible: Jon Sellers Director of Information Technology Department coordinated with Frank Abbate Director Human Resources</p>	<p>Open</p>

Rating	Issues	Recommendation	Management Response	Status
IT Project Management				
7.	<i>Program/portfolio management framework for IT investments is defined</i>			
	<p>There are no county-wide written policies, procedures or practices related to IT system development life cycle processes and project management.</p> <ul style="list-style-type: none"> • IT project management framework is established and maintained • IT project monitoring, measurement and management system established and maintained • Project charters, schedules, responsibilities, quality plans, budgets, are built and communicated • Projects and project changes are monitored and controlled • Project assurance and review methods are defined and implemented 	<p>Once the corrective action in response to Risk 1, Item 1 is complete, the Director of ITD needs to develop and establish SDLC policies and procedures that encompass the following areas:</p> <ul style="list-style-type: none"> • New IT/Telecommunication hardware and software acquisition through production deployment (requirements definition, design documentation, data conversion, testing, training, and migration) • Project management processes (small through county-wide) • Existing system and application change management (including patches and upgrades) 	<p>Response: Management has accepted recommendations and is leveraging these corrective actions with the development and issuance of the administrative order in response to Issue 1.</p> <p>ECD: November 30, 2006 for all ITD projects and complete county-wide rollout by December 31, 2008.</p> <p>Person Responsible: Jon Sellers Director of Information Technology Department</p>	Open

Rating	Issues	Recommendation	Management Response	Status
IT Process Quality Management				
	8. <i>Quality management system / standards defined and maintained and communicated through the organization</i>			
	Software development and IT operational quality systems have not been defined and established to address the following: <ul style="list-style-type: none"> • Establish quality management systems, goals, policies and procedures • Measure, monitor and review compliance with the quality goals. • Continuous improvement methodologies defined and maintained 	Once corrective actions are completed in response to Risk 1 Item 1, ITD should develop and establish Quality Management policy and procedures to provide reasonable assurance that the following processes are meeting management’s objectives: <ul style="list-style-type: none"> • System and application code validation performance (error per line of code) is being monitored and corrective actions taken when quality performance goals are not met. • Service level agreement performance (networks, applications, help desk, etc.) 	<p>Response: Management has accepted recommendations.</p> <p>ECD: ITD policies are scheduled to be developed by December 31, 2006 and rolled out county-wide per a project plan matrix. Final corrective actions are scheduled to be completed by December 31, 2008.</p> <p>Person Responsible: Jon Sellers Director of Information Technology Department</p>	Open

Rating	Issues	Recommendation	Management Response	Status
IT Human Resources Management				
	9. <i>HR policies and procedures relevant to IT recruitment, hiring, training, appraising, promoting and dismissing are developed</i>			
	a <i>Recruitment / hiring</i>			
	<ul style="list-style-type: none"> Our review of Administrative Order (AO) 26, Background Investigation Checks, disclosed that this AO does not require IT systems administrators and similar IT positions of trust (access sensitive or mission critical data or systems supporting critical infrastructure) to undergo at least a Level II background check (FDLE and out-of-state criminal check based on the past seven years address history). ITD is currently performing Level II background checks on prospective employees, but has not established a department level procedure for performing these background checks. 	AO-26 should be reviewed and revised to include the provision of more extensive background checks (at least level II) for IT positions of trust.	<p>Response: Management has accepted recommendations.</p> <p>ECD: July 30, 2006</p> <p>Person Responsible: Jon Sellers Director of Information Technology Department</p> <p>Frank Abbate Director of Human Resources</p>	Open
	b <i>Training</i>			
	Our review of 2006 Training and Development Opportunities Manual revealed that IT security awareness and internal controls training are not incorporated into the new hire orientation training. Also, there is no evidence of annual/recurring IT security awareness training.	Employee training requirements should be updated to include initial and recurring IT security training. This provides awareness of existing requirements upon employment and subsequent updates regarding policies, procedures, and threats.	<p>Response: Management has accepted recommendations.</p> <p>ECD: July 30, 2006</p> <p>Person Responsible: Jon Sellers Director of Information Technology Department</p>	Open

Rating	Issues	Recommendation	Management Response	Status
IT Human Resources Management				
9.	<i>Continued</i>			
c	<i>Promoting and dismissing</i>			
	<ul style="list-style-type: none"> • Merit System Procedure 10 - Promotions, Transfers & Demotions does not address personnel additions and modifications to IT systems • Merit System Policy 14 - Separation from County Service disclosed that changes to employee status (terminations) do not trigger respective changes to IT systems access and privileges. • Our interview with the Manager of Client Services disclosed that these termination notifications were not consistently provided as required by administrative order AO-12 Notification of employee transfers or termination for purposes of computer security. 	<p>Update or establish new policies and procedures to address IT access privilege changes made in response to:</p> <ul style="list-style-type: none"> • Promotions • Transfers • Demotions • Termination workflow and out processing that requires IT approval <p>The processes should be automated to greatest extent possible via SAP reports and workflows integrating ITD and employee's managers to ensure timely validation of access changes in response to employment status changes.</p>	<p>Response: Management has accepted recommendations.</p> <p>ECD: September 30, 2006</p> <p>Person Responsible: Jon Sellers Director of Information Technology Department</p> <p>Frank Abbate Director of Human Resources</p>	Open