

Performance Audit

COMPUTER INFORMATION SYSTEMS (CIS)

**In 2014 the name changed to
The Department of Innovation and Performance**

Report by the
Office of City Controller

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CITY CONTROLLER**

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August 2014

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MICHAEL E. LAMB

CITY CONTROLLER

First Floor City-County Building • 414 Grant Street • Pittsburgh, Pennsylvania 15219

August 5, 2014

To the Honorables: Mayor William Peduto and
Members of Pittsburgh City Council:

The Office of City Controller is pleased to present this performance audit of the **City Information Systems (CIS)** conducted pursuant to the Controller's powers under Section 404(c) of the Pittsburgh Home Rule Charter.

EXECUTIVE SUMMARY

In January 2014, City Information Systems was renamed the Department of Innovation and Performance (I&P). Throughout this audit, the department will be referred to as City Information Systems or CIS, the name of the department during the audit period.

During the audit period, City Information Systems was responsible for all City government information technology functions, City cable television broadcasts and installing and supporting all end-user workstations and voice/data telecommunications, including the City telephone system.

CIS also develops software programs for Public Safety, Finance and other departmental initiatives, provides network services, develops and maintains the official City website and trains City employees in Microsoft Office applications. CIS has assumed technology responsibilities for the Urban Redevelopment Authority and is planning to expand Information Technology (IT) services to other City authorities. The department is also responsible for City utility procurement and payment.

Findings and Recommendations

Contracts

Like most City departments, CIS makes liberal use of existing County and State contracts. By "piggybacking" on existing contracts, CIS is able to eliminate the costs of awarding its own contract for the same service.

Finding: Ninety percent (90%) of the vendors most used by CIS have been obtained through existing State or County contracts.

Information Technology (IT) Consultant Usage

Finding: Information supplied by CIS indicates that B Three Solutions is the department's primary IT consultant. B Three was paid \$334,256.80 in 2012 and \$312,710.24 in 2013 for a variety of Information Technology services. However, conversations with CIS Administration stated that the yearly budget for B Three Services does not exceed \$325,000 per year.

B Three (B III) Solutions

Finding: A Former CIS employee was hired as a B Three consultant in 2013 to fill in for the specialized work of database management. The rate of this consultant, despite not including benefits, is at a much higher pay rate than a regular city employee. B Three is often used to "pinch-hit" in situations where a City employee is unavailable or the work is for a short period.

Recommendation: Before outsourcing to B Three or another consultant, CIS administration should determine which IT functions can be performed by its employees.

Finding: B Three Solutions Services are on call 24 hours a day, seven days a week.

Finding: In most situations, B Three Solutions is paid by the department receiving the service. However, invoices for Library Tax are sent to CIS instead of to the Finance Department.

Finding: Invoices for software maintenance are sent to CIS, instead of to the department receiving the service.

CIS Hardware Purchasing Practices

Finding: CIS has no formal plan or methodology for purchasing and deployment of assets. CIS currently purchases equipment based on departmental requests and City-wide needs as they become necessary.

Recommendation: The department should adopt the Information Technology Investment Management (ITIM) Framework for Assessing and Improving Process Maturity. This Framework would allow them to streamline purchases across departments while maximizing efficiency and effectiveness and Return on Investment (ROI). This framework would also allow for the retirement of certain obsolete technology and the seamless transition into new technology. The ITIM framework was introduced in a GAO report on IT management.

Information Technology Investment Management (ITIM) Framework

The ITIM framework presents a cumulative model that consists of 5 progressive stages of maturity that an organization can use to achieve better IT management capabilities.

Finding: CIS purchases are based on Departmental Director requests, with little or no input from CIS itself. CIS will complete the equipment specification for the purchase and make recommendations, but it is the Director of the department that has the final authority as to what is purchased.

Recommendation: CIS should have more input. Since CIS is ostensibly the expert in computer technology and implementation, departmental requests and needs should be submitted to CIS. CIS should then determine the best way to address those requests to fit the needs of each department. Moreover, if CIS decides to implement some type of ITIM framework, it could use that framework to help devise a strategic plan for each department. The plan would address the purchase of assets, deployment, retirement, and transition into new technologies.

Finding: Some departmental purchases come out of CIS's budget. On January 27, 2014, there was a purchase of 15 iPhones and 15 iPads, along with accompanying cases and data and Wi-Fi for the Mayor, Directors, and staff. The total price of this purchase was \$16,236.88 and it came out of the CIS budget.

Recommendation: All purchases, if they are to benefit a specific department, should come out of that department's budget. The exception to this would be bulk purchases, such as toner and ink.

Finding: Purchases of Ink and Toner come out of the CIS budget. Paper is purchased out of each Department's or Bureau's individual budget.

Recommendation: Purchases for Ink and Toner should continue to come out of the CIS budget since they are normally purchased in bulk and benefit all departments, not just one specifically.

Finding: The implementation of certain key programs, specifically the migration to the Windows 7 operating system, was plagued by delays and problems due to obsolete and unsupportive hardware.

Recommendation: CIS needs to develop a strategic plan for major projects. Implementing a framework like ITIM would allow this to happen. If a plan was in place, the unsupportive and obsolete hardware could be transitioned out and new hardware implemented before new software or programs were deployed.

Recommendation: Despite the benefits of relying on State contracts for their convenience and discounts, an over-reliance does have its potential pitfalls. The familiarity with these vendors could lead to over-looking better prices elsewhere and could give the appearance of favoring certain vendors over others. Moreover, the reliance on State contracts does not allow the flexibility to purchase the exact quantity needed. Often the purchases are in bulk amounts, which offer a reduced price per unit, but can lead to over-stocking issues. CIS should explore all options in purchasing hardware and equipment, rather than solely relying on State contracts.

Sincerely,



Michael E. Lamb
City Controller

INTRODUCTION

This performance audit of City Information Systems (CIS) was conducted pursuant to section 404(c) of the Pittsburgh Home Rule Charter. An audit released in 2011 assessed the effectiveness of the CIS help desk, CIS contract usage and City network security. This audit assesses CIS computer hardware purchasing practices and use of consultants for IT functions.

OVERVIEW

In January 2014, City Information Systems was renamed the Department of Innovation and Performance. Throughout this audit, the department will be referred to as City Information Systems or CIS, the name of the department during the audit period.

During the audit period, City Information Systems was responsible for all City government information technology functions. According to its website, CIS plans, acquires, installs and supports the City's proprietary and open computing environments, including personal and mobile computers. CIS also develops software programs for Public Safety, Finance and other departmental initiatives, provides network services, develops and maintains the official City website and trains City employees in Microsoft Office applications. CIS has assumed technology responsibilities for the Urban Redevelopment Authority and in the process of offering expanded Information Technology (IT) services to other City authorities.

CIS is also responsible for City cable television broadcasts and installing and supporting all end-user workstations and voice/data telecommunications, including the City telephone system. The department is also responsible for City utility procurement and payment.

Budget

In 2013, CIS had 60 budgeted positions, an increase of an additional position over the previous year. A network engineer position was added, and a Client Support Analyst 3 replaced a lower level Client Support Analyst 1 position. Money budgeted for Professional and Technical Services was \$1,789,862 for both years.

SCOPE

Audit scope is for purchasing IT equipment and consultant usage is January 1, 2012 through December 31, 2013 and the beginning of 2014.

OBJECTIVES

1. To assess CIS purchasing practices for computer hardware.
2. To assess CIS use of consultants for IT functions.
3. To make recommendations for improvement.

METHODOLOGY

The auditors met with CIS administrative personnel to discuss departmental purchasing procedures and consultant usage. The following information was requested: a list of the contracts most used by CIS in 2011, 2012 and through September 2013; a list of all consultants used in the same timeframe with a short description of the duties/functions performed and whether the work was done on or offsite; a list of all Request for Proposals issued by CIS from January 1, 2011 through September 2013. A list of employees by job title whose duties are partially or wholly performed by consultants was also requested.

The auditors grouped invoices submitted by CIS' primary software by type of work and payor. Internet research was done to obtain best practices for computer and related equipment replacement.

FINDINGS AND RECOMMENDATIONS

Contracts

Like most City departments, CIS makes liberal use of existing County and State contracts. By “piggybacking” on existing contracts, CIS is able to eliminate the costs of awarding its own contract for the same service. Information supplied by CIS lists 31 most frequently used vendors in 2012 and 2013.

Finding: Ninety percent (90%) of the vendors most used by CIS have been obtained through existing State or County contracts.

Table 1 lists CIS’ most used contracts by service and or product category and the contract source:

TABLE 1
2012 AND 2013
CONTRACTS BY SERVICE and/or
PRODUCT CATEGORY
and the CONTRACT SOURCE

Number of Contracts	Product or Service	State Contracts	County Contracts	City Contracts	Unknown
4	IT Hardware	2	2		
9	IT Services	6	3		
10	Telecommunications	6	3	1	
8	Other	1	5	1	1

Information Technology (IT) Consultant Usage

CIS utilizes outside consultants for IT functions, such as software applications development and software maintenance.

Finding: Information supplied by CIS indicates that B Three Solutions is the department’s primary IT consultant. B Three was paid \$334,256.80 in 2012 and \$312,710.24 in 2013 for a variety of Information Technology services. However, conversations with CIS Administration stated that the yearly budget for B Three Services does not exceed \$325,000 per year.

B Three (B III) Solutions

During the audit scope, B Three billed for 5 consultants at \$75 or \$80 per hour. One consultant worked on-site for the Police systems developed by B Three and another B Three employee worked offsite. Three other individuals (two of whom were former CIS employees) were brought on as independent consultants and billed through B Three. One former CIS employee continued web development work as a B Three consultant.

Finding: A Former CIS employee was hired as a consultant in 2013 to fill in for the specialized work of database management. The rate of this consultant, despite not including benefits, is at a much higher pay rate than a regular city employee. B Three is often used to “pinch-hit” in situations where a City employee is unavailable or the work is for a short period.

RECOMMENDATION NO. 1:

Before outsourcing to B Three or another consultant, CIS administration should determine which IT functions can be performed by its employees.

B Three Invoices

TABLE 2
2012 and 2013
MONEY PAID to B THREE
by DEPARTMENT or BUREAU and PROJECT

DEPARTMENT Or BUREAU	PROJECT	2012		2013	
		AMOUNT	PERCENT	AMOUNT	PERCENT
Finance, Parks, Mayor etc.	Software Maintenance	\$170,518.75	51.01%	\$199,907.50	31.52%
Mayor	Web Development	\$76,676.05	22.94%	\$38,335.24	6.04%
Finance	Library Tax	\$86,582.00	25.90%	\$53,100.00	8.37%
CIS	Google Support	\$480.00	0.14%	\$0.00	0.00%
CIS	DBA* Backup	\$0.00	0.00%	\$21,367.50	3.37%
	TOTALS**	\$334,256.80	100.00%	\$312,710.24	100.00%

*Data Base Administration

**Any discrepancies due to rounding.

Finding: B Three Solutions Services are on call 24 hours a day, seven days a week.

Finding: In most situations, B Three Solutions is paid by the department receiving the service. However, invoices for Library Tax are sent to CIS instead of to the Finance Department.

Finding: Invoices for software maintenance are sent to CIS, instead of to the department receiving the service.

CIS Hardware Purchasing Practices

Finding: CIS has no formal plan or methodology for purchasing and deployment of assets. CIS currently purchases equipment based on departmental requests and City-wide needs as they become necessary.

RECOMMENDATION NO. 2:

The department should adopt the Information Technology Investment Management (ITIM) Framework for Assessing and Improving Process Maturity. This Framework would allow them to streamline purchases across departments while maximizing efficiency and effectiveness and Return on Investment (ROI). This framework would also allow for the retirement of certain obsolete technology and the seamless transition into new technology. The ITIM framework was introduced in a GAO report on IT management.

Information Technology Investment Management (ITIM) Framework

The ITIM framework presents a cumulative model that consists of 5 progressive stages of maturity that an organization can use to achieve better IT management capabilities. In Stage 1 of the Framework, the entity is making investment and purchasing decisions in an unstructured and ad hoc manner. Long-term strategic goals are rarely considered and successful outcomes are both unpredictable and not repeatable. In Stage 2, implementation of critical processes lay a foundation for sound IT decisions that have successful, sustainable, and repeatable results. Whereas Stage 2 is more specific project oriented, Stage 3 expands that focus to the entity as a whole and how given projects fit, support, and connect with the overall strategy and goals. Stage 4 stresses the utilization of evaluation techniques to improve the investment process, while recognizing obsolete and “high-risk, low value” investments. Stage 5 represents the maturity level where benchmarking takes place and breakthrough investments are explored.

Finding: CIS purchases are based on Departmental Director requests, with little or no input from CIS itself. CIS will complete the equipment specification for the purchase and make recommendations, but it is the Director of the department that has the final authority as to what is purchased.

RECOMMENDATION NO. 3:

CIS should have more input. Since CIS is ostensibly the expert in computer technology and implementation, departmental requests and needs should be submitted to CIS. CIS should then determine the best way to address those requests to fit the needs of each department. Moreover, if CIS decides to implement some type of ITIM framework, it could use that framework to help devise a strategic plan for each department. The plan would address the purchase of assets, deployment, retirement, and transition into new technologies.

Finding: Some departmental purchases come out of CIS's budget. On January 27, 2014, there was a purchase of 15 iPhones and 15 iPads, along with accompanying cases and data and Wi-Fi for the Mayor, Directors, and staff. The total price of this purchase was \$16,236.88 and it came out of the CIS budget.

RECOMMENDATION NO. 4:

All purchases, if they are to benefit a specific department, should come out of that department's budget. The exception to this would be bulk purchases, such toner and ink.

Finding: Purchases such as Ink and Toner come out of the CIS budget. Paper is purchased out of each Department's or Bureau's individual budget.

RECOMMENDATION NO. 5:

Purchases for Ink and Toner should continue to come out of the CIS budget since they are normally purchased in bulk and benefit all departments, not just one specifically. In addition, these are normally purchased at a discount.

Finding: The implementation of certain key programs, specifically the migration to the Windows 7 operating system, was plagued by delays and problems due to obsolete and unsupportive hardware.

RECOMMENDATION NO. 6:

CIS needs to develop a strategic plan for major projects. Implementing a framework like ITIM would allow this to happen. If a plan was in place, the unsupportive and obsolete hardware could be transitioned out and new hardware implemented before new software or programs were deployed.

IT Hardware purchases are from 4 vendors on state contracts. The 4 vendors are Anixter, ePlus Technology Inc., Hewlett-Packard Company, and Omega. The breakdown of spending per year is detailed in Table 3.

TABLE 3
2012 and 2013
SPENDING BY VENDOR

VENDOR	2012	2013
Anixter	\$ 1,383.90	\$ 0.00
ePlus Technology Inc	\$ 756,698.22	\$ 619,945.38
Hewlett-Packard Company	\$ 70,455.46	\$ 246,978.60
Omega	\$ 0.00	\$ 27,608.52

RECOMMENDATION NO. 7:

Despite the benefits of relying on State contracts for their convenience and discounts, an over-reliance does have its potential pitfalls. The familiarity with these vendors could lead to over-looking better prices elsewhere and could give the appearance of favoring certain vendors over others. Moreover, the reliance on State contracts does not allow the flexibility to purchase the exact quantity needed. Often the purchases are in bulk amounts, which offer a reduced price per unit, but can lead to over-stocking issues. CIS should explore all options in purchasing hardware and equipment, rather than solely relying on State contracts.

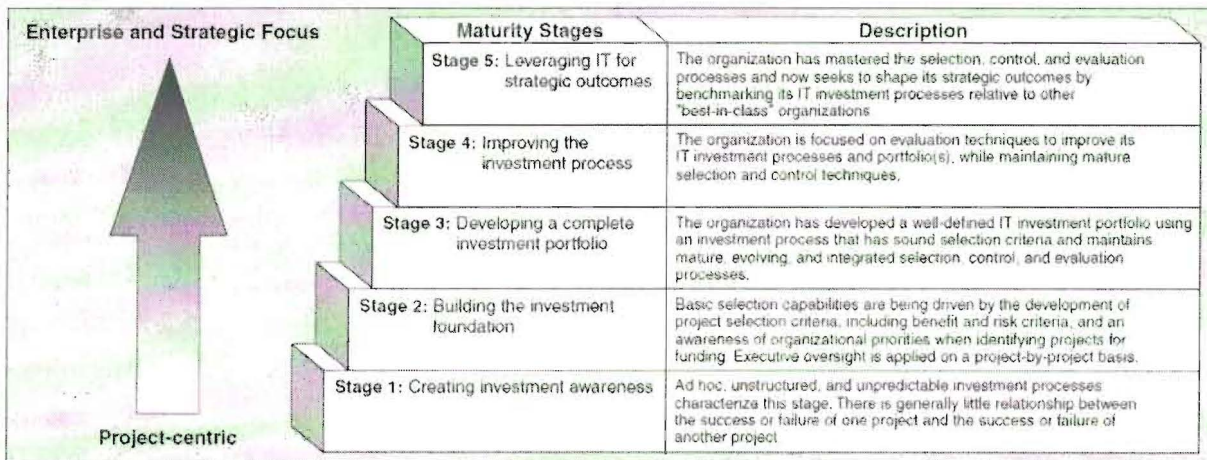
APPENDIX

**INFORMATION TECHNOLOGY INVESTMENT MANAGEMENT (ITIM)
AS PRESENTED IN A GOVERNMENT ACCOUNTABILITY OFFICE (GAO) REPORT**

In any organization or entity making capital purchases on a regular basis, a framework needs to be in place to insure that these purchases are not only necessary, but also properly implemented and utilized. This is even more critical when the purchases are IT related since these purchases are often expensive and tend to influence all aspects of the organization. This is where the tenets of Information Technology Investment Management (hereinafter "ITIM"), as presented GAO report on IT management, become critical to any entity making regular IT decisions.

The ITIM framework presents a cumulative model that consists of 5 progressive stages of maturity that an organization can use to achieve better IT management capabilities. The framework is a flexible one, however, for it can be used as a model, to determine level of maturity, to assess processes, and as a benchmark for improvement.

Figure 2: The Five Stages of Maturity Within ITIM



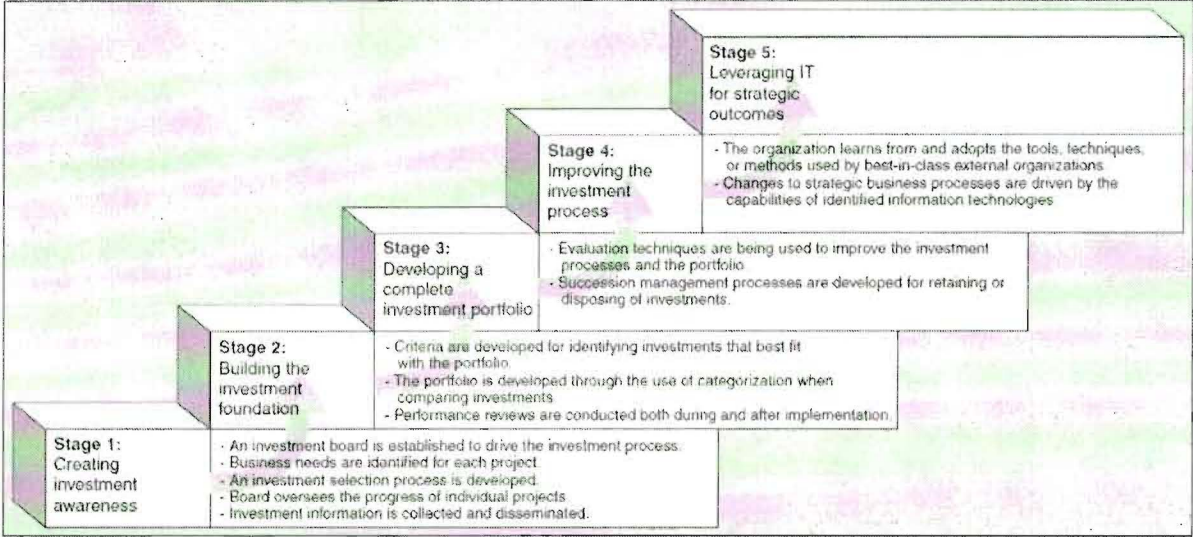
Source: GAO.

In Stage 1 of the Framework, the entity is making investment and purchasing decisions in an unstructured and ad hoc manner. Long-term strategic goals are rarely considered and successful outcomes are both unpredictable and not repeatable. In Stage 2, implementation of critical processes lay a foundation for sound IT decisions that have successful, sustainable, and repeatable results. Whereas Stage 2 is more specific project oriented, Stage 3 expands that focus to the entity as a whole and how given projects fit, support, and connect with the overall strategy and goals. Stage 4 stresses the utilization of evaluation techniques to improve the investment process, while recognizing obsolete and "high-risk, low value" investments. Stage 5

represents the maturity level where benchmarking takes place and breakthrough investments are explored.

As an entity moves through the various stages, there are certain activities, priorities, and process that need to be achieved and put into place. Since the ITIM strategy is a cumulative one, each process that is implemented or activity that is accomplished builds on and improves an earlier one. Thus it is critical for an entity to have a solid foundation in moving forward with ITIM. The following graphic illustrates the critical maturation steps in the various stages.

Figure 3: Critical Maturation Steps Required to Move to the Next Stage



Source: GAO

Before an organization can fully utilize the ITIM framework, it must determine what decision-making and policy infrastructure it already has in place. Since the framework is fluid and cumulative, the starting point for an entity can vary based on what is in place. If an organization or entity determines that it is in Stage 1 and would like to progress to Stage 2, it is critical that investment control processes be established and utilized. These would include the creation of an investment board which would oversee and select IT projects and it collection of critical information such as cost-benefit analysis, risk assessment, performance metric and system functionality. Each of these processes allows the entity to gain a better perspective of the IT investment in order to serve the needs of the end users. In addition, the entity would begin to implement basic selection criteria such as the identification of what is needed and necessary in relation to the overall strategy and goals.

As the organization begins to mature in Stage 2 and refine the processes it has implemented, it moves to Stage 3. That move is highlighted by the aligning investments with

strategic goals, both long and short term, and weighing each investment's merits in relation to them. The organization is not simply purchases without direction, in Stage 3 purchases and investments are part of a portfolio which fits into the larger organizational goals. Also, each individual investment is reviewed and evaluated based on how they meet their performance expectation. In moving from Stage 3 to Stage 4, the organization or entity has a complete and mature investment process that builds upon process implemented and lessons learns in the lower stages. This stage is also highlighted by managing resource succession, which is where migrating to successor investments or retiring obsolete and low-performing ones in favor of alternative investments is done. Finally, when an organization or entity moves from Stage 4 to Stage 5 it has mature selection, control, and evaluation processes in place. It then seeks ways to institutionalize them and improve strategic business outcomes. It achieves this by benchmarking, which is examining and learning from outside organizations, and incorporating those ideas into the organization.



**CITY OF PITTSBURGH
DEPARTMENT OF INNOVATION & PERFORMANCE**



MEMORANDUM

TO: Michael E. Lamb
City Controller

FROM: James Sloss
Deputy Director

DATE: June 24, 2014

SUBJECT: I & P Finances

The following is the response prepared by the Department of Innovation & Performance regarding the audit conducted by the Controller's Office in late 2013 on City Information Systems.

Methodology

I&P requests a list of all searches and online sources used to establish "best practices" be included in the final version of the audit.

Recommendation 1

Recommendation 1 states that CIS administration should determine which IT functions can be performed by its employees prior to engaging with a consultant.

Upon review the Department of Innovation & Performance can confirm that city IT functions are performed by city employees when applicable. Only when specialized IT services are needed does I&P contract with a third party consultant.

Recommendation 2 and 3

Recommendation 2: The Department should adopt the Information Technology Investment Management (ITIM) framework for Assessing and Improving Process maturity.

Recommendation 3: CIS should have more input in departmental requests and address need.

Both recommendations pertain to CIS purchasing procedures. I&P has addressed this issue and in March issued a memo to all Directors outlining the new procedure. This memo is attached and labeled "IP Procedure for Purchasing".

Recommendation 4

Recommendation 4 states that "All purchases, if they are to benefit a specific department, should come out of that department's budget".

The Department of Innovation & Performance agrees with this recommendation and in April began to compile invoices for equipment purchased during the first few weeks of the new administration. I&P made these purchases to assist in an easy and smooth transition and expects a full reimbursement to our accounts shortly.

Recommendation 5

Recommendation 5: Purchase for Ink Toner should continue to come out of the CIS budget.

I&P agrees with these findings and believes that the City does benefit from the bulk toner purchases.

Recommendation 6

Recommendation 6: CIS needs to develop a strategic plan for major projects.

I&P agrees with these findings and is working with OMB to develop a long term plan that would be implemented in the 2015 Capital Budget.

Recommendation 7

Recommendation 7: CIS should explore all options in purchasing hardware and equipment rather than solely relying on state contracts.

CIS and now I&P have always provided state contract holders an opportunity to participate in our purchasing process. For each IT related purchase multiple companies under state contract are contacted, with the lowest response awarded the purchase.



City of Pittsburgh

Innovation & Performance

William Peduto
Mayor

Debra Lam, Director & Chief
Innovation & Performance

MEMORANDUM

TO: Directors

FROM: Debra Lam

DATE: March 18, 2014

SUBJECT: Procedure for purchasing Innovation & Performance (I&P) Department [1] supported equipment and supplies

I&P are happy to provide options and recommendations on equipment. All equipment requests must first be approved by the department Director. Such approved request should be emailed to cishelpdesk@pittsburghpa.gov for service request tracking.

A quote based on I&P supportable hardware and existing contracts and terms will be returned to the department within 48-72 hours of first request. Once approved the equipment will be ordered, delivered and staged/configured. After staging is complete, I&P will deliver and install the equipment. Equipment costs are assumed by the requesting department. Invoices will be sent separately via departmental memo.

This procedure supports the City's asset management plans, ensures equipment purchases are cost-effective and integrated into the City network for optimal and secure use. Therefore any equipment purchased outside of I&P knowledge/specification will NOT be supported by I&P nor allowed on the City network.

Please feel free to contact I&P for additional questions.

Debra Lam, Chief & Director of
Innovation & Performance

[1] Formerly City Information Systems (CIS). All subsequent communications will be gradually transitioned from CIS to I&P.

Official Internet Address: www.pittsburghpa.gov
City County Building, 414 Grant St., Room 604, Pittsburgh, PA 15219

