



EXECUTIVE DEPARTMENT Information Technology Division

Staff Report to the Urbana City Council December 30, 2014

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INTRODUCTION

This staff report provides an overview of the city's Information Technology (IT) division based on findings from the first year of the IT division manager. The report is written simply to inform Council about the IT division's operations, although later sections provide warnings of upcoming budgetary changes. The first section describes what IT does, the second section details the funding for IT, and the final section outlines three core objectives for the IT division.

A two-sentence summary of this report: The IT division maintains the computer and technology infrastructure of the city, including business systems that the departments use for daily operations. The IT division is funded from the General Fund and its costs are on par with similarly sized cities in the region, although compared to our peers we have a higher percentage of costs in personnel - and a correspondingly lower percentage in payments to external vendors.

STAFF REPORT

What does IT do? Answer #1: IT Maintains the Technology Infrastructure

In the 21st century, city operations cannot run without an infrastructure of desk computers plus the network and servers that connect these computers to each other and the Internet. One especially important server is our IBM Power 7 machine (better known by the name of its forerunner: the "AS/400") that runs many critical business systems. We will discuss the Power 7 in more detail below.

In addition to hardware, there is a parallel infrastructure of software, such as Adobe for document publishing, Esri for mapping, and especially Microsoft Windows and Office. As discussed below, much of the city's business software is internally developed.

IT "owns" this infrastructure on behalf of the city – we purchase and maintain the components, and IT is the first line of support for city staff for every problem from spreadsheet help to a dead power strip. At best, the IT infrastructure is like the city's plumbing– we hope that our customers (the other city departments) don't have to think about it. At worst it's like the HVAC, in that it's noticeable when it breaks down.

IT also supports technology that is purchased and "owned" by the departments. For example, both Police and Fire have rugged laptops in their vehicles that connect to the METCAD call

center. Parking services has handheld machines to issue tickets, and we hope to soon outfit some Community Development and Public Works field workers with handheld devices. There is an ever-growing list of technology that city staff uses to deliver services – and that IT must support.

Another area of IT responsibility is the city's phone system. City Hall uses a digital/analog phone system that is more than 10 years old. (The Public Works building transitioned to a newer version of the same technology in the past few years.) The phone system was due to be replaced in the 2014 fiscal year, and there is a budget line for phones in the Vehicle and Equipment Replacement Fund (VERF), but it was not deemed a priority for VERF spending at the time - a status that has not changed. IT also works with Finance to manage the city's mobile phones, and late in 2014 we consolidated plans to better monitor the city's phone usage.

Lastly, IT supports the city's printing and scanning. Most of the city's scanning (except for Police) is done by Patty Smith, who has the full time job of keeping up with current activity as well as scanning historical documents to reduce paper storage. For printing, the city has a contract with a local vendor to recharge printing cartridges and maintain the printers. (Ink, toner, and paper are paid from a single budget line in the Finance department, and are not part of the IT budget, although printers are purchased from the IT Computerization budget – more on that below...) IT is not responsible for copiers, which are used for both printing and copying. The city leases copy machines from vendors who charge per print, and those costs are paid by the departments directly or are allocated to departments as Standard Charges for “Copier Lease and Maintenance.”

What does IT do? Answer #2: IT Supports Business Systems

Business systems are the software applications that the departments use to deliver services and do their work. For example: Finance has the financial and payroll systems, Fire & Rescue uses Firehouse, Police uses ARMS, Community Development has PTWin (and is looking at new inspections software), and Public Works uses systems for Fleet and Arbor management. Multiple departments use Geographic Information Systems (GIS), for which the city maintains data that is shared with the County's GIS consortium.

Some of these business systems were written by Urbana employees, while others are software packages purchased from vendors. For internally written systems, IT is responsible for maintaining the systems and modifying them as requirements change – for example new rules in the latest Firefighter contract require changes to the payroll system for July 1. For purchased software, IT installs upgrades and works with vendors to solve problems as they arise.

At this point, almost all software is managed internally; the city runs very few systems “in the cloud”. (Running “in the cloud” means that the system is installed externally and not on servers physically located at the city.) The city's website is an excellent example of the difference between running business systems internally or externally. In October 2013, the website went down for about a month due to server failures. It was down for so long because it had been internally run, and the same person fixing the server failures was also the one we needed to restore the website. In November 2013, we decided to pay a vendor to restore the website and start managing it for us from another location. Now the only IT staff working on the website is our webmaster, Kelly Cundiff, and her role is focused on the *content* of the site; she supports staff from the departments,

who maintain their own web pages. When problems occur, we call the vendor and they take charge of fixing it. What is not in our control, however, is how soon it will be addressed or how much they will charge us for the work.

A major focus for IT in the past few months has been unleashing the data that exists in our business systems, so that city departments can more easily query and analyze their information. We started with ARMS and financial data – with other systems to follow: payroll, Firehouse, and CD Inspections data. Some of this information will be presented to the public on an Open Data site that the city will launch early in 2015.

What does IT Spend, and what Revenue does it Generate?

Spending for the IT division is broken down below by the four main budget categories. All of the spending here is from the General Fund. (A version of this table with notes and more details appears in the Supplemental Information at the end of the report.)

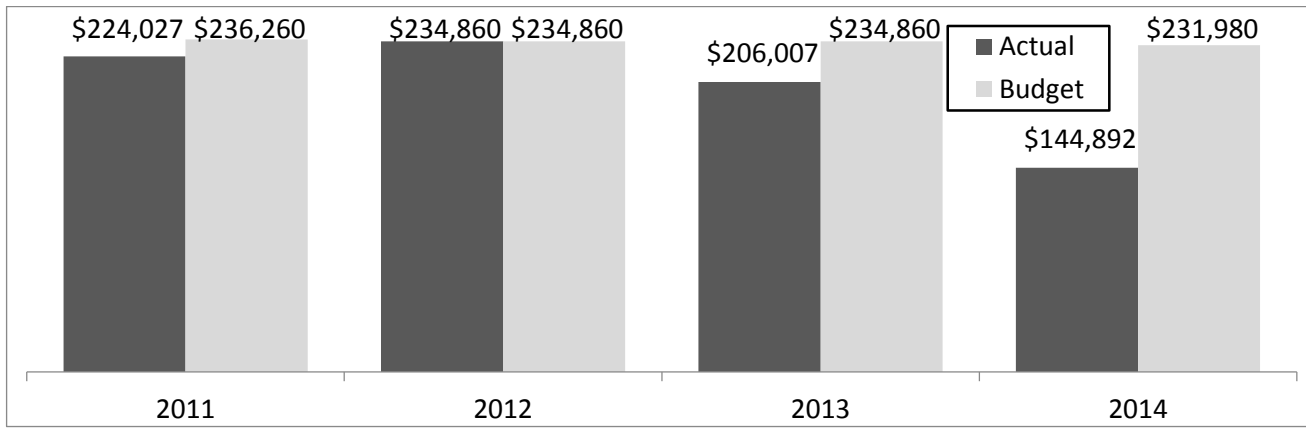
Personnel	\$600,356
Commodities	\$67
Contractual	\$42,763
Capital	\$14,570
Total	\$657,756

Not included in the dollar amounts above are the two special purpose funds managed by the IT division: the ARMS fund and the UPTV fund. Each of those funds has its own set of accounts (and employees), and both are outside the scope of the discussion here.

Another type of General Fund spending managed by the IT division is called “Computerization.” This is the way that the city allocates its IT infrastructure costs to the departments. Hardware and software used by everyone is bought from a single cost pool and then the costs are split out to the departments. Similar processes are used for other “Standard Charges” like phones and copiers.

The methods used to split the costs for phones and computers were lost in the mists of time, so new methods were developed in the past year: Computerization is allocated among departments by the number of desktop computers in each one, and phone costs are split by the number of telephones. Approximately 11% of the Computerization costs are allocated back to the IT division – a heavy user of computers!

As shown in the chart below, the IT infrastructure team - led by Network Administrator Shawn Fluno - does a good job managing costs. The spike of spending in 2012 was due to the upgrade to Windows 7, which required new desktop computers for most city staff. City computers (in the aggregate) will now be part of the VRF, so that spending is more constant for future replacements. The low amount spent in 2014 was the result of not having an IT division manager for 5 months, and then a brand-new manager for the rest of the fiscal year.



As a peer comparison, IT spending from similarly sized Midwestern cities is presented in the table below. To compare apples to apples, IT spending is presented as a percentage of overall General Fund spending and components such as payroll and contractual services as a percentage of the IT budget. Computerization is also included here (\$252,201) as if it were spent from the IT division’s budget to make the comparison more accurate. Supplemental Information (at the end of this report) contains an annotated version of this table, with more details.

Urbana is close to our peers for IT budget as a percentage of total General Fund spending, with a higher proportion spent on salaries and a lower proportion paid to outside vendors – this is in keeping the IT division’s historical “build it ourselves” approach.

	Urbana	University City, MO	Park Ridge, IL	Rock Island, IL	Jefferson City, MO	DeKalb, IL
Population (2010 Census)	41,250	35,371	37,480	39,018	43,079	43,862
2015 General Fund Operating Budget	\$34.27 M	\$24.27 M	\$28.56 M	\$35.85 M	\$28.03 M	\$35.14 M
IT Budget as a % of General Fund Operating	2.58%	2.58%	2.11%	3.66%	4.05%	2.41%
IT Payroll as a % of IT Budget	68.03%	0.00%	55.45%	52.88%	70.33%	64.05%
IT Contractual as a % of IT Budget	1.74%	56.19%	22.42%	27.56%	3.87%	28.23%
Computerization, or best equivalent	\$252,201	\$211,000	\$112,470	\$181,785	\$231,000	\$60,402

No discussion of IT spending is complete without noting the revenue earned by the IT division. The city’s IT division provides financial and payroll system services to the Urbana Park District, Urbana Free Library, and Cunningham Township – and bills for that work. Additionally, the IT division supports network and PC needs for the Park District as part of a further service agreement. **The current amount of earned revenue is approximately \$60,000 per year.** Supplemental Information (at the end of this report) contains a table with the last 10 years’ IT revenue, which is deposited into General Fund Revenue (009 fund code).

Three Objectives for the City's IT Division

All of the information above describes the current status of the IT division. The next section looks ahead and identifies three core objectives moving forward.

Objective #1: Continuity, and Improvement, of Business Systems

Over time, city programmers have created many business systems that run on the Power 7 (“AS/400”) server. **Successful operation of these systems is critical for the city - and for our client governments.** Some of the key systems include:

- Financial / budget/ payments (also used by Park District, Library, and Township)
- Payroll (also used by Park District, Library, and Township)
- ARMS (also used by the Champaign, University, and Rantoul Police departments – and soon the Sheriff)
- Collector’s Office Cash Register
- U-Cycle and Rental Registration billing
- Inspection history for Community Development
- The list still grows ... a new one is planned for False Alarm tracking and billing.

All of these systems are custom software written by city programmers. The systems have worked very well for a long time and the strategy of creating our own systems has succeeded in delivering a great product for an excellent price.

As a risk to the city’s operations, however, the dependence on customized software and on a single platform is a concern. Business requirements evolve, so further programming is always required. Also, the systems are written in a programming language that has a diminishing base of users – and is therefore an increasingly rare skill to find in new employees.

A particular concern is the workload of Carla Tucker, who does an excellent job maintaining and tailoring the software listed above (excluding ARMS), while delivering outstanding support to our internal and external customers. Over-dependence on any one person is a risk, particularly if they are as hard to replace as Carla!

The problem is that software has a lifespan just like everything else. Planning for, and implementing, the upgrades/replacements for these systems is a multi-year effort, whether the new systems are built internally or purchased from vendors.

Over the next few years, any transition to new systems will require substantial participation from Carla, who is the only person able to explain how the systems work now and (even more importantly) **why** they work that way. The challenge is freeing Carla from all the regular tasks that she must do, so she can focus on new or upgraded systems.

To free Carla’s time, we are planning to experiment this summer by hiring an intern, who could develop into a full-time programmer analyst. With an intern, we hope to achieve a few things:

- Offload some of Carla’s recurring maintenance tasks onto someone else.
- Complete some of the open tasks that our primary programmers have on their to-do lists.
- Find out whether an intern is a viable option for IT work, and find out what kind of training is needed for new staff to learn the Power 7.

The intern position is projected to cost \$4,573 in fiscal year 2015, of which 25% will be paid by the ARMS fund. The remaining \$3,430 will be paid by General Fund money, which will require a budget amendment to transfer slightly more than ½ of the budget authority from the IT budget for Training & Education to a new line for personnel.

Objective #2: Protecting the City’s Data and Computer Infrastructure

The term “Cyber Security” is used here as a catch-all concept for everything from network intrusions to the theft of sensitive city data. Unfortunately, with Cyber Security we work from the assumption that problems will happen, so our job is to do our best to prevent them and plan for what happens when they do occur.

In the coming year, our infrastructure team (Shawn Fluno, David Miller, and Linda Trevena) will continue to strengthen the protective walls we have in place, performing tasks such as:

- Inventorying our databases, verifying data backup strategies, and making sure that information in each database is properly secured.
- Review and document our disaster recovery procedures to restore systems from failure.
- Analyzing our networks and comparing ourselves to industry best practices. Our current network policies are very restrictive on the users, which helps protect us but is also a source of some dissatisfaction. We will continue to seek the right balance between the users’ desires and appropriate security levels.
- Conducting user training on safe computing, and working with departments on best practices for data retention, such as network drives and e-mail archives.
- Analyzing the purchase of better security hardware, such as a “Next Generation” firewall, to help monitor and prevent network issues.

Objective #3: Effective Use of the City’s Technology Spending

It is a fact that more technology tools will continue to be released in the future, costing the city an ever-greater amount to purchase and support. Unfortunately, these are usually net new costs; they do not replace other spending. Items like squad car cameras, tablets for housing inspectors, and smart phones are new technologies that become indispensable, but represent new spending for already tight budgets.

Like Cyber Security, increased spending on technology is a problem that can only be managed - not prevented. The greatest benefit that IT can provide here is to help departments define their requirements carefully, choose options wisely, sign good vendor agreements, and accurately estimate the ongoing support costs (and the necessity) of new gizmos.

One emphasis the city has always used with technology spending is to associate costs as closely as possible with the divisions that use them. This allows division and department managers a clear picture of the actual costs of the technology they use. For example Police equipment is bought from budget lines in Patrol or Investigations, and Public Work's pavement software is directly charged to the Engineering division. The "Computerization" allocation exists because many of the software and hardware components are shared across the city, but are best considered a cost of business for departments and divisions. IT will continue this practice, and may even refine the allocation logic to provide better information and a "billing statement" to the departments.

Another point of emphasis for the coming year will be to review the city's procurement policies for software and hardware and create standards for technology RFPs and vendor contracts. This will help IT verify that technology purchases match the city's goals for costs, platform, and security.

Finally, a practice that will continue in the future is cooperation with other local governments on technology. The ARMS system is a model of success here, as were 2014 efforts for state Criminal Justice Information System (CJIS) compliance, and replacing connections from the Fire substations to METCAD. Other areas of coordination could include Champaign's upcoming procurement for Financial/Payroll software, shared resources with the County (who also use the Power 7 architecture), and joint disaster planning with other local governments. Where the needs of the different governments are similar, combining our expertise and purchasing power can result in a better outcome for all.

Supplemental Information

The information in this section provides detail and commentary on some of the high-level information provided in the preceding report.

Annotated table of the General Fund budget for the IT division:

Spending for the IT division is broken down below by the four main budget categories. All of the spending listed in this table is from the General Fund, and includes recent amendments for employee pay increases.

Personnel	\$600,356	
Commodities	\$67	Note 1
Contractual	\$42,763	Note 2
Capital	\$14,570	
Total	\$657,756	

Note #1: The “commodities” budget is low because the office supply budget for the IT division remained with Finance when IT moved to the Executive department. (It is more cost effective to share supplies with Finance than to start our own “supply closet.”) All that remains are \$67 for Books & Periodicals.

Note #2: More than 80% of the “contractual” costs are paid to other city funds, and not to outside vendors. This includes: Computerization (\$27,418), City Insurance (\$4,590), Vehicle Service (\$1,500), City telephone (\$1,360), and Worker’s Comp (\$300).

Annotated Comparison of IT Spending Against Peer Cities

This table has additional rows that do not appear in the earlier version, as well as notes on the Urbana amounts.

	Urbana	University City, MO	Park Ridge, IL	Rock Island, IL	Jefferson City, MO	DeKalb, IL
Population (2010 Census)	41,250	35,371	37,480	39,018	43,079	43,862
General Fund Operating Budget (FY 2015)	\$34.27 M	\$24.27 M	\$28.56 M	\$35.85 M	\$28.03 M	\$35.14 M
IT Budget (FY 2015)	\$882,539 <small>Note #1</small>	\$625,400	\$603,379	\$1,311,718	\$1,133,761	\$847,336
IT Budget as a % of General Fund Operating	2.58%	2.58%	2.11%	3.66%	4.05%	2.41%
IT Budget – Payroll Only	\$600,356	\$0	\$334,603	\$693,701	\$797,361	\$542,704
IT Payroll as a % of IT Budget	68.03% <small>Note #2</small>	0.00%	55.45%	52.88%	70.33%	64.05%
IT Full-Time Employees	7	0	3	7	9.25	4
IT Budget – Contractual Only	\$15,345	\$351,400	\$135,286	\$361,482	\$43,900	\$239,245
IT Contractual as a % of IT Budget	1.74%	56.19%	22.42%	27.56%	3.87%	28.23%
Computerization, or best equivalent	\$252,201 <small>Note #3</small>	\$211,000	\$112,470	\$181,785	\$231,000	\$60,402

Note #1: This budget amount is the actual IT Budget (\$657,756), plus Computerization (\$252,201), minus allocated Computerization to IT (\$27,418), so that the last amount isn't double-counted.

Note #2: The city is on the higher side of payroll as a share of IT budget, but the contractual spend is very low – reflecting our “in house” strategy. University City (MO) is the extreme opposite; they have outsourced IT and have no staff.

Note #3: Computerization is also inversely related to Contractual; as more infrastructure is outsourced (and paid as service cost) it does not need to be purchased.

IT Division Revenue

This table shows the last 10 years' IT revenue, which is deposited into General Fund Revenue (009 fund code). Since this practice began in 1988, billed amounts increased regularly.

Fiscal Year	Financial and Payroll System			Network & PC Support	Total Revenue from IT Services
	Library	Park District	Cunningham Township	Park District	
2005	\$ 9,128	\$ 9,128	\$ 2,236	\$ 20,700	\$ 41,192
2006	\$ 9,448	\$ 9,448	\$ 2,316	\$ 21,425	\$ 42,637
2007	\$ 9,780	\$ 8,980	\$ 2,396	\$ 22,281	\$ 43,437
2008	\$ 10,172	\$ 10,172	\$ 2,492	\$ 27,972	\$ 50,808
2009	\$ 10,680	\$ 10,680	\$ 2,620	\$ 29,231	\$ 53,211
2010	\$ 11,160	\$ 11,160	\$ 2,740	\$ 30,254	\$ 55,314
2011	\$ 11,552	\$ 11,552	\$ 2,836	\$ 31,313	\$ 57,253
2012	\$ 11,956	\$ 11,956	\$ 2,936	\$ 33,900	\$ 60,748
2013	\$ 12,436	\$ 12,436	\$ 3,052	\$ 34,199	\$ 62,123
2014	\$ 12,748	\$ 12,748	\$ 3,052	\$ 33,513	\$ 62,061
2015	\$ 12,748	\$ 12,748	\$ 1,392	\$ 33,077	\$ 59,965

Note #1

Note #1: In March, 2014 the amount billed to Cunningham Township was reduced because they began performing their own financial and payroll entry. The IT services did not change, but the total amount dropped because effort by city Finance staff was removed.

Further Discussion of the Programmer Intern Position Costs and Funding

This additional information explains the approach and cost projections for the intern, including the scenario by which they eventually become a full-time employee.

An intern is a low-cost/low-risk proposition and we have many checkpoints in the process.

- At the end of the summer, we have a choice (budget permitting) to continue an internship during the 2015-2016 school year with the same intern, to hire a different intern, or to have no intern.
- In June 2016, assuming the intern has worked out, we could create a full-time position they could apply for. Or we could hire a different intern for the summer.

At best, we will find a programmer who can learn the Power 7 programming language and become a full-time resource in the future, increasing our capacity to support the systems. At worst, will have learned that an intern is not feasible in IT, and also how to better train future staff on the Power 7.

IT will fund the intern position in fiscal year 2015 (the current year) from the existing budget. A budget amendment will be submitted to move budget authority from Contractual to Personnel. For fiscal year 2016, the requested IT division budget will include Personnel budget for an intern during the fall and spring semesters, when they can work limited hours and receive school credits. If that budget is not approved, the intern position will end in August, 2015 – so in that scenario only six weeks’ costs will be needed in fiscal year 2016.

Also, part of the new programmer’s time would also be charged to the ARMS fund; we would allocate 25% of the programmer’s cost and time to working on ARMS tasks. We are equally dependent on our ARMS programmer, Dave Wakefield, who could find many “to do” items to assign to a new programmer, also. (Of course, working on ARMS will be dependent on a background check.)

In the most expensive scenario where we find an intern, keep them during the 2015-2016 school year, and hire them as a full-time employee in June 2016, the budgetary impact would be:

Fiscal Year	Total Cost of Programmer/Analyst	ARMS Fund Budget Impact (25% of Cost)	General Fund IT Budget Impact (75% of Cost)
2015	\$ 4,572.68	\$ 1,143.17	\$ 3,429.51
2016	\$ 27,448.74	\$ 6,862.18	\$ 20,586.55
2017	\$ 77,882.69	\$ 19,470.67	\$ 58,412.02
2018	\$ 79,567.57	\$ 19,891.89	\$ 59,675.68

These numbers make the following assumptions:

- 25% of the person’s costs are billed to ARMS.
- The person is an intern for the summer of 2015 (40 hours/week from June 1 – August 15). Pay is in the mid-high range of the Intern position “Clerical and Professional Support.”
- The person continues to work 15 hours/week as an intern during the fall and spring semesters, which allows the intern to receive class credit for working.
- The position would become full-time in June 2016, and would be paid the minimum level of the Programmer/Analyst I position, at pay grade 40.
- In December 2016, good performance would increase the salary to the normal level for their pay grade.
- Benefits, including health insurance, are included. It is unclear at this point if insurance is required based on new federal rules, but the estimate assumes it is a paid benefit.
- Future pay raises are not estimated; pay rates use the level known through FY 2016 for 2017 and 2018, also.