City of Lawrence — Information Systems

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SUBJ: 2005 Budget Request Letter of Transmittal

This document summarizes the Information Systems Department budget request and critical issues for the 2005 budget year. The proposed 2005 budget reflects an overall 3.5% increase due primarily to increases in capital outlay. Efforts have been made to minimize or defer expenditures as optional program improvements when possible. However, much of the department's expenditures center around software and hardware maintenance/replacement costs that cannot be deferred. Although contractual services and commodities requests remain the same or less than 2004 levels, capital outlay expenditures that cannot reasonably be delayed further are included in the 2005 request. The capital outlay request largely represents the department's significant budget issues for 2005.

Three capital outlay equipment items slated for replacement are included in the budget request:

- Refurbishment of the computer room Symmetra uninterruptible power system (UPS).
- Replacement of the City Hall Exchange email server
- Replacement and consolidation of the four document imaging servers into one high-capacity server

In addition to Information System salaries, budgeted dollars largely go to fund computer equipment and services that in turn support all other department operations. Information Systems primary functions and priorities can be summarized in these categories:

- ➢ Network Management & Security
- ➢ Personal Computer Support
- ➢ E-Government Initiative
- ➢ Telecommunications
- ➢ Geographic Information Systems
- ➢ Midrange Iseries/400 Support
- ➢ Document Imaging

Significant Issues—Capital Outlay

Symmetra UPS refurbishment

Symmetra UPS
and
XR Batteries

Included in the 2005 budget request is a capital outlay request to recondition the uninterruptible power system (UPS) in the City Hall computer room. Reconditioning involves replacement of the 14 batteries and various system components to extend the system warranty for an additional two years.

The existing Symmetra 8kVA UPS was purchased in 1998 and provides conditioned power to the city's computer servers. The UPS also provides short-term backup power in the event of a power disruption.   The unit was previously "refreshed" (reconditioned) in 2003 to extend the warranty period two more years, but this warranty will expire in July 2005.

A program improvement has been included to replace the entire UPS with a new 12kVA rack-mounted model at an estimated cost of $20,960 with trade-in. If this UPS program improvement for replacement were approved, then the $9,500 expense to refurbish the existing UPS would become unnecessary.

Email Server Replacement

The Email server is one of the most critical servers in the day-to-day operations of the City of Lawrence. Employees use the email server for email correspondence, appointment calendars, contact information, task lists, and archival. The current server will be three years old and out of warranty in 2005. Since this server runs 24/7 and is of critical importance to the organization, it is recommended that this server be replaced at the end of the warranty period. The replaced server could then be used in turn to replace a still older server that is used to monitor the City's network.
Estimated cost: $9,500

Image Server consolidation & Software upgrade
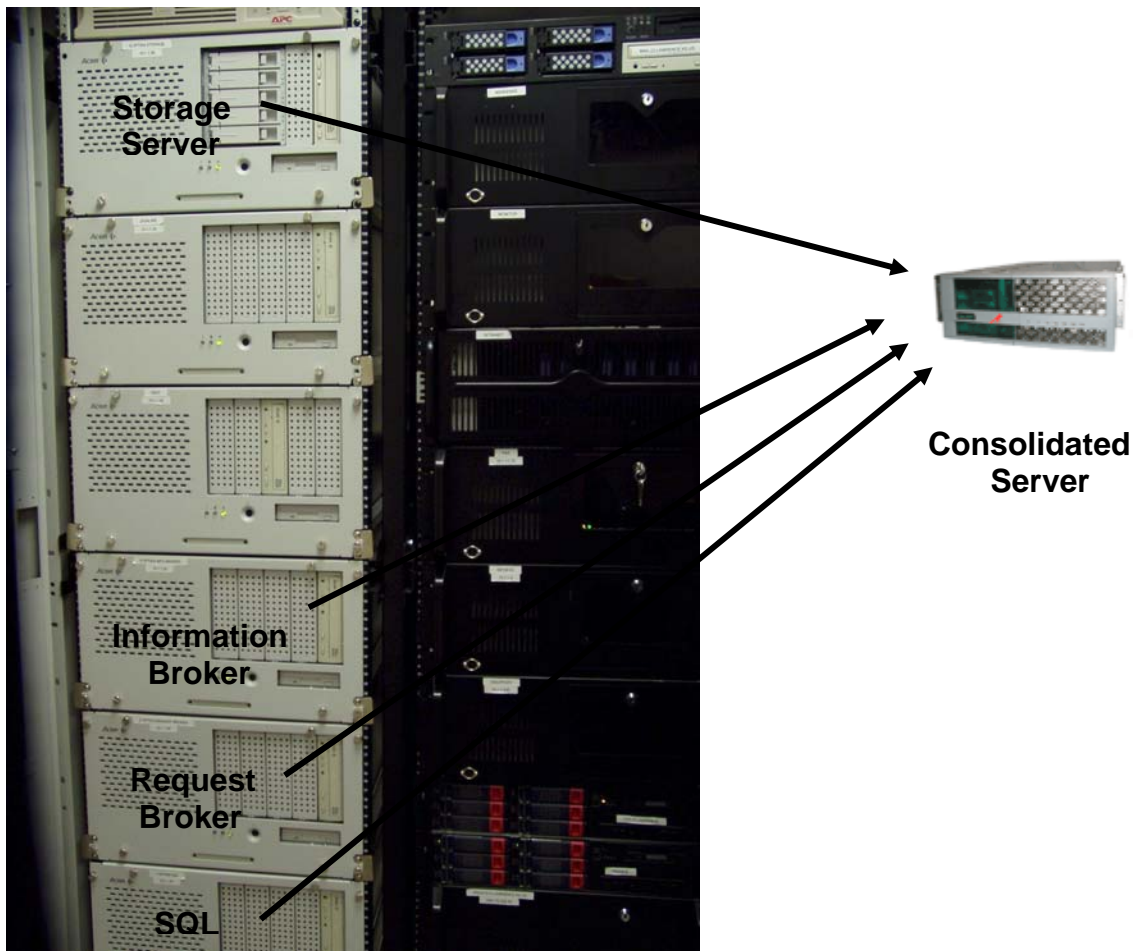
City Hall's imaging system currently consists of four Optika *Acorde* servers that store data scanned by Finance, Neighborhood Resources, Legal Services, City Clerk, Storm water and Planning. These servers were purchased in early 2000 and will out of warranty two years by the time they are replaced.

Costs include $9,500 for a new server that will replace all four of the current servers, and $7,500 to consolidate the imaging system and upgrade the Acorde software version from 2.3 to version 4.0. Optika will no longer support the currently used version 2.3 of *Acorde* after December 2004.
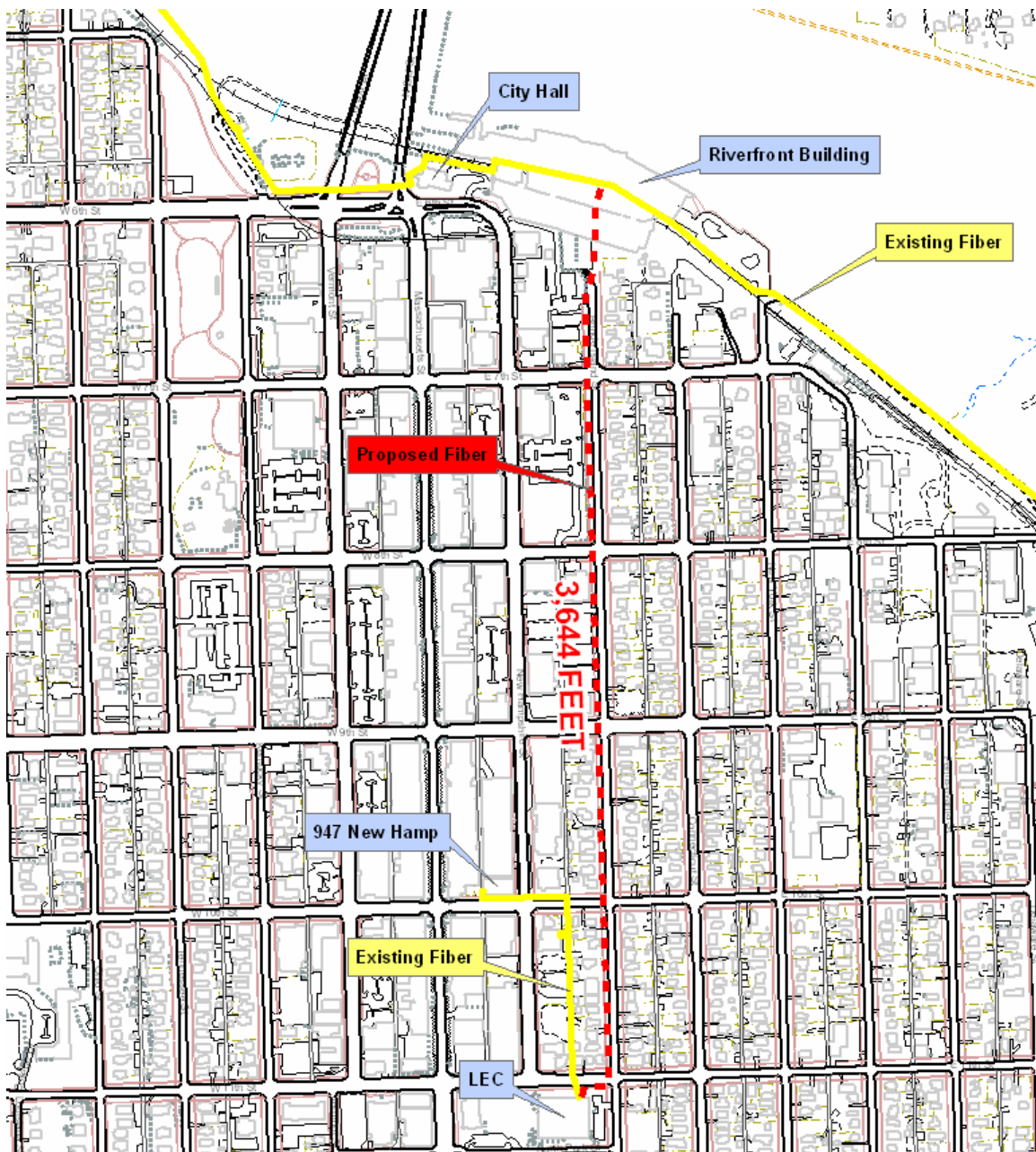
Program Improvements

Fiber optic cable from City Hall to LEC—Program Improvement

This program improvement would be a cooperative project with Douglas County to install fiber optic cable between City Hall and the Law Enforcement Center. Enough capacity would be included to provide very high bandwidth connectivity for several functions.

- o **GIS benefit** – A fiber connection between the City of Lawrence and Douglas County would benefit both organizations from a GIS data transfer standpoint. GIS data is currently transferred using a FTP site. Data is copied, in zip format, to the FTP site where the receiving party then retrieves the data to be incorporated into the appropriate system. Ultimately, with fiber in place, both organizations could draw from a common data source where each entity has its own responsibilities for data maintenance. This structure would be of greatest benefit to persons doing data analysis and for those parts of the organizations that use the data on a daily basis. Other benefits include: automation of data transfer; centralized applications; less data redundancy; prevention of data covetousness; organized metadata; and more widespread and effective use of GIS data on a daily basis.

- o **Municipal Court benefit** – Municipal Court uses a standalone Optika imaging system for storing court records. Separate computer hardware and Optika software are used to run the court's imaging system. With a fiber optic connection to City Hall, the separate imaging system could be eliminated and combined with the City Hall imaging system. Security on the system would effectively isolate court documents from the other systems at City Hall. Not only would software and hardware costs be reduced, but also management and maintenance would occur on one central imaging system instead of two.

- o **Data connectivity benefit** – Data communication from City Hall to municipal court, the law enforcement center, and offices at 947 New Hampshire is accomplished using multiple leased ISDN circuits from SBC Communications and cablemodem service from Sunflower Broadband. Additionally, network security over the Sunflower Broadband system requires a computer at each connection point running security software called IPSec. The proposed fiber optic cable from City Hall could link with existing fiber that connects the LEC with municipal court and on to offices at 947 New Hampshire. The proposed fiber would provide all these locations with high-speed data connectivity and eliminate the need to lease the ISDN circuits from SBC and cablemodem service from Sunflower Broadband. The fiber would also eliminate the need to run the IPSec security since Sunflower cablemodem service would not be used.

- o **Telephone connectivity benefit** – The LEC and 947NH offices share telephone lines originating from City Hall. Telephone system connectivity from the LEC and 947 New Hampshire back to City Hall is accomplished using a leased T1 line from SBC. The proposed fiber optic cable from City Hall to the LEC could replace this leased T1 line for telephone connectivity

between the two sites. This would eliminate the monthly costs ($200) for
the T1 circuit from SBC Communications.

Douglas County officials will receive this same proposal and will also need to
consider funding the project at an assumed 50-50 split on the estimated $64,000
project. Estimated City cost: $32,000.

Uninterruptible Power System Replacement—Program Improvement
The existing 8kVA UPS provides clean power for computer servers at City Hall and also provides short-term emergency power (< 2 hours) in the event of a power outage. This UPS was purchased in 1998, had been reconditioned once in 2003 and would need to be reconditioned again in 2005 at an estimated cost of $9,500 in order to keep the warranty in force. The growing numbers of computer systems in the computer room that are attached to this UPS have increased the load to 85% of capacity.

This program improvement is included to replace this 8kVA UPS with a new rack-mounted 12kVA unit.   A new 12kVA UPS would address the capacity issue and also come with a 2-year warranty that is extendable. Approval of this program improvement would eliminate the need to recondition the existing UPS, and the estimated $9,500 reconditioning expense could be removed from the 2005 budget request.
Estimated UPS replacement cost: $20,960

Document Imaging Software—Program Improvement
In 1998, a document imaging analysis was done by Black and Veatch for the City of Lawrence. This study reviewed departmental needs and identified potential areas where document scanning and storage would be of the most benefit. The outcome of that study was a request for proposal to a dozen imaging vendors to provide equipment, software, and installation to serve the imaging needs in four pilot departments.

As one of the pilot departments, Finance desired to implement a workflow invoice process to route scanned invoices to the appropriate department for approval, and then route the approved invoice back to Finance for payment processing. This scenario required additional functionality in the software in the form of workflow processing and computer-output-laser-disk (COLD) functionality in addition to the standard image storage and retrieval. At the time only two vendors proposed a system that could provide all these functions and that system was from Optika, Inc. called Optika *eMedia*.

This rather complex workflow invoice routing system in Optika *eMedia* was never implemented due to a number of obstacles. Chief among the obstacles was that during the project, Optika changed their imaging software product from *eMedia* to Optika *Acorde* but did not include upgrade capabilities to migrate the *eMedia* workflow system to the new *Acorde* workflow system. Subsequently the workflow and COLD functions were dropped from the system to reduce maintenance costs. The Optika Acorde imaging system used by the City

provides basic storage and retrieval of scanned documents, but it is expensive to maintain and difficult to develop new applications.

Since imaging was first installed at the City new products have become available at lower cost that address the issues with the current Optika system. One area of improvement in newer systems is the ability to import various document formats directly into the imaging system without the need to first scan the image. With Optika *Acorde*, all documents must first be scanned and stored as a tiff image in the system. Newer imaging systems such as DocuWare or OnBase permit Word, Excel, pdf, etc to be imported into the system as indexed with no scanning.   Additionally, newer systems may be accessed using a web browser to retrieve images from the system. These improvements along with improved reliability, usability and lower maintenance costs combine to support the case for replacing Optika *Acorde*. The City of Overland Park for example recently implemented DocuWare for their document imaging system.

Existing computer servers, scanners, and scanning software would be maintained with any new imaging system. The expenditures involved with a new system would include the imaging software licensing, software installation costs, and conversion costs necessary to import all existing images and applications into the new system.   Budgetary figures have been prepared based upon pricing obtained for the DocuWare imaging system and conversion costs. Since Municipal Court and City Hall are currently on separate imaging systems, separate program improvements have been prepared for the two sites. Estimated City Hall cost: $48,020 Estimated Municipal Court cost: $29,020

## Storage Area Network—Program Improvement
Information Systems is recommending a Storage Area Network (SAN) for storing data that is currently stored on individual servers. Future servers could be purchased at lower costs since there would not be a need for RAID controllers and hard-drives. SAN's provide high-availability and flexibility in managing data and are used by many organizations that are required to mange multiple servers. For example, Douglas County and Lawrence Memorial Hospital utilize SAN's in managing their data, as well as most other area cities of similar network size. The City of Overland Park uses two SAN's; one is used as a mirror of the first at a remote site. The SAN would store data for email, GIS, imaging, and many other critical data servers. Listed below are just a few of the advantages that a SAN offers:

- o **Centralized Storage** – Since the data would reside on the SAN, diskless servers can be purchased saving money in future purchases. Many servers may have 50% of their hard-drives storage space not being used; a SAN makes managing actual needed storage space easier.
- o **Protection** – Improved data redundancy and replication capabilities. Hard-drives are kept in a super-cooled environment allowing for longer life. Mirroring, cloning, replication and data snapshots add to the flexibility of managing data. For example, a snapshot can be made of a server before an upgrade, allowing for evaluation and testing to be done on a 'backup copy' of the data or server.

- **Business Continuity** – Rapid restore in the event of an outage or disaster. The unit includes three years of 24x7x4 hour response support.
- **Manageability** – Centralized management, managing a single storage unit, instead of many separate RAID systems on individual servers. A server can be removed and a backup unit immediately installed if a server has a problem. Server room capacity would increase, as future servers would be smaller in size.
- **Scalability** – Modular design allows for additional capacity to be added as needed. By removing general-purpose traffic (end-user data such as e-mail, etc.) from the network, the SAN servers and storage devices can dedicate resources to managing and supporting only I/O traffic. Since ongoing operations are not affected, storage capacity can grow and storage performance can improve.
- **Improved Backup Capabilities** – The SAN and the servers are directly connected via fiber optic cable. The backups do not go over the network, allowing for backups to occur at anytime rather than being limited to a nightly backup window.
- **Performance** – High availability and access from anywhere on the network, including increased data bandwidth, speed, and response.
- **Value** – Lower total cost of ownership and lower cost per gigabyte of storage. Again, future servers would be less expensive since hard-drives and RAID controllers would not be necessary.

Estimated Storage Area Network cost: $66,255

Storage Area Network (SAN)
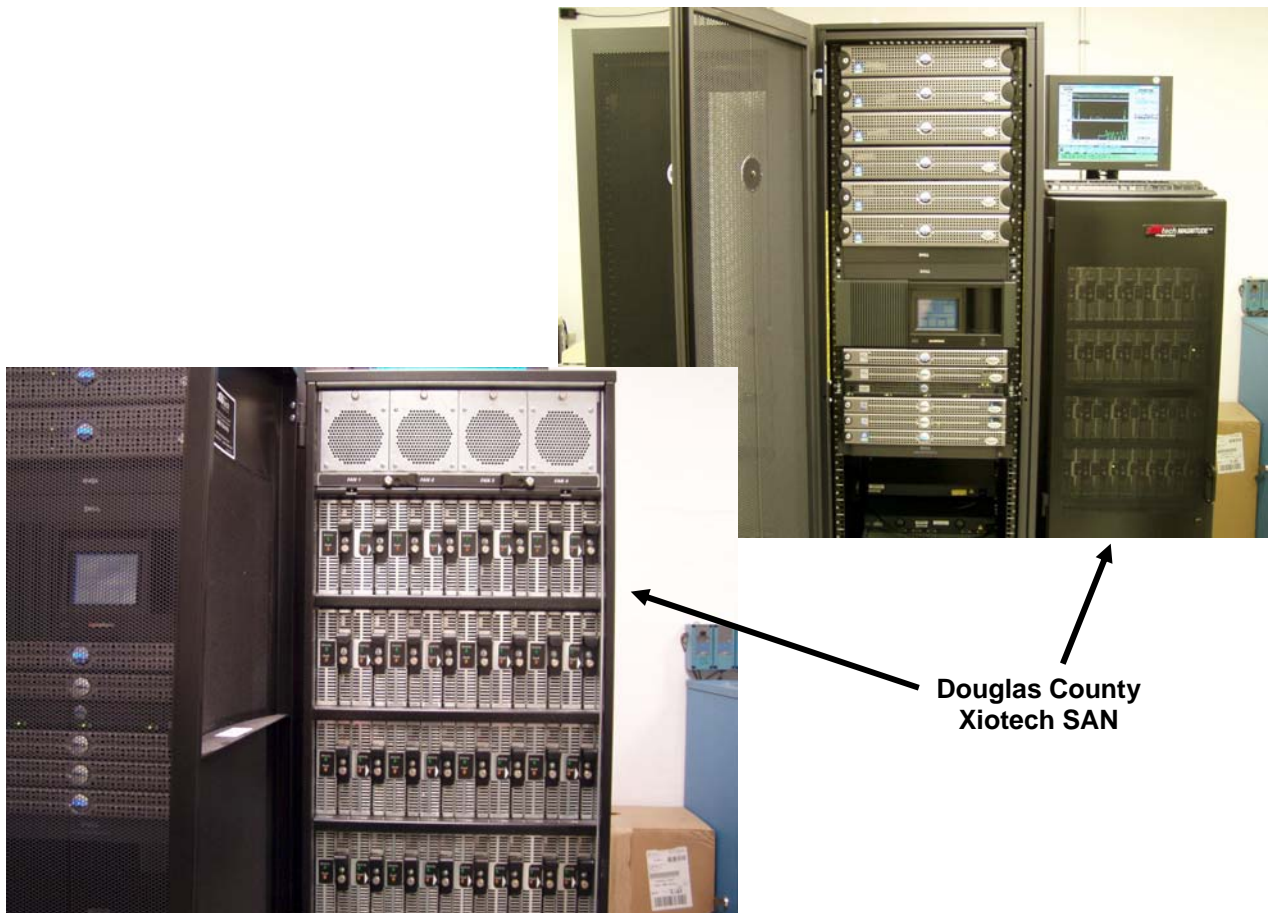
**Douglas County
Xiotech SAN**

Telephone Systems Replacement—Non-critical future consideration

Three Rolm telephone CBX systems for City Hall, Kaw Water Plant, and Law Enforcement Center were purchased at the end of 1992. Although these three systems are functioning properly and are reliable, their continuous use for 12 years, increasing maintenance costs, and limitations in new features are in part justification for considering replacement.

In addition to the age of these systems there are some shortcomings that could be addressed with new systems.   Employees outside of City Hall who use Rolm telephones and also use the City Hall voicemail system are currently unable to receive a blinking message waiting light when a voice message has not been heard. Work arounds such as out-calling to a pager are used to notify that a new message has arrived. A new Siemens system at City Hall would address that issue. Another shortcoming of the current Rolm phones is that the speakerphones are simplex or "CB-like" communication where one party at a time may speak. A new system would provide duplex or 2-way speakerphones such that both parties could speak without cutting out the transmission of one of the callers.

Emerging technologies such as voice-over-IP (VoIP) allow for telephone conversations to occur over data circuits in much the same way that computers send data over the local area network. Special Internet Protocol (IP) phones would literally plug in to a computer jack and telephone calls made over the computer infrastructure. Other new technology such as Unified Messaging allow for voicemail, email, and faxes to be retrieved from a single source on the desktop computer. These technologies are possible due to the common denominator of digital transmission of data. The proposed replacement systems would position the organization to take advantage of the emerging technologies.

In addition to minimizing conversion issues, staying with Siemens products allows our telecommunications technician to be able to manage the software on all these systems remotely from City Hall.   Several locations have installed newer Siemens systems including the Police ITC, maintenance garage, Wastewater Plant, and Indoor Aquatic Center to help take advantage of centralized management. Configuration changes to the telephone buttons and operations could be done through a central computer to provide all Siemens users with quick response to their requests. Phones systems in all facilities are linked back to the City Hall system and in some cases share SBC lines installed at City Hall. This accounts for the higher expense of the City Hall system.

If approved, the City would solicit bids on this equipment.

Estimated cost before bid for City Hall system: $170,000
Estimated cost before bid for L.E.C. system: $ 67,000
Estimated cost before bid for Kaw system: $ 31,000

E-Government Update

Strategic Implementation Plan Applications

A City Commission goal in 2002 made the implementation of E-Government services a priority in order to more easily provide information to citizens. To complete that objective the City of Lawrence became one of twelve regional cities and counties to join in an E-Gov forum sponsored by Innovation Groups and the Kansas City Mid-America Regional Council (MARC). Through a series of presentations and information sharing this group became familiar with the benefits, technical issues, costs, and steps necessary to successfully implement E-Government programs. Through this process, together with the results of a citizen survey, the City of Lawrence developed an E-Government Strategic Implementation Plan and identified seven E-Gov projects for phased implementation.

- o Internet Mapping (complete)
- o Web-based Commission Agenda (complete)
- o Online Utility Billing (complete)
- o Online Job Applications
- o Online Recreation Class Enrollment (complete)
- o Building Construction & Permits (complete)
- o Employee Intranet (complete, add'l features needed)

Of these seven identified projects, six are installed and a search for acceptable software is in progress for the seventh project.

Internet Mapping: Computer hardware and software hosted by the Data Access Support Center (DASC) on the KU campus enables the City to display GIS data on the DASC website. A link from the City's website to DASC enables web browsers to display selected information layers on a map of the city.   Selected data from the City GIS system is periodically transmitted to DASC in order to keep the online data current.   This service was introduced in early 2004.

Web-based Agenda: Launched in January 2004 this project places the weekly commission agenda and supporting packet materials online for commission and public use. New tablet computers were purchased for commissioners and staff to use

Online Utility Billing: The online utility billing software called "Click2Gov" is installed to enable customers to review their water bill charges and consumption history online. As of this writing, approximately 1,100 utility customers have registered and activated their online accounts.

Online Recreation Enrollment: This application is called "WebTrac" and allows customers to review and enroll in Parks and Recreations classes online. Parks and Recreation went live with the product in Fall 2003. To date there have been approximately 1,600 citizens that have enrolled in classes using this online product since its introduction.

Employee Intranet: The hardware and initial design for the employee Intranet has been completed and in use. Information such as contact information, policies, forms, newsletters, and announcements are available to employees. A second phase to the Intranet that includes a transactional capability for employees to submit requests for changes to demographic data and benefits information on the payroll system is desired. An HTE Click2Gov turnkey software application is available to address this desired functionality.

Online Permit & Inspection Inquiry: Launched in February 2004 this HTE Click2Gov application provides a web access point into the Neighborhood Resources new building permit system. Permit holders are issued a Personal Identification Number (PIN) on each permit enabling them to access the permit information and complete inspection activity via the City website. As a companion project to this initiative, building inspectors were issued wireless personal digital assistants (PDA) devices that allow them to approve or disapprove an inspection in the field. These PDA devices are a combination cell phone, digital camera, and hand-held computer that use Internet connectivity from Verizon Wireless.

Potential New E-Gov Projects
Intranet Improvement:
Allow employees to review information in their payroll records such as accruals, benefits, deductions, and other amounts from the Intranet. Additionally allow employees to make changes to selected demographic data and submit the request from the Intranet.

A turnkey application from SunGard HTE called Click2Gov for Employee Self-Service is available to provide this information. This software would install on the City's existing Click2Gov server and link into the HTE payroll system to provide this information via the Intranet. An employee number and assigned PIN would be required for security reasons in order to access this information.

Benefits of Click2Gov for Employee Self-Service include:
o Improved service by allowing employees to view and/or update their own demographic and accrual information via the Internet. Employees may change their contact and dependant information online and view all of their current earnings, benefit, and tax information.
o Improved efficiency by reducing the time that the personnel office spends responding to employee requests and inquiries.

Municipal Court Officer Citations: Although not a true Egov project there has been discussion of needing an automated method of downloading or transferring police officer citations for parking violations into the municipal court database is desired. This would eliminate re-keying information from hand-written information in ticket books. The existing Muni Court software, CompuCourt, has limitations on this and other functionality. CompuCourt may be replaced in the

future and this will have a bearing on the design of officer citation data transfer. It was stated that perhaps only the traffic unit initially is involved in this project.

Legal Notices online: Legal notices currently published in the newspaper at City expense could be instead placed on the City website. A similar process is done in Bellevue, Washington on their website: http://www.ci.bellevue.wa.us/page.asp?view=1044 A List Serve could be used to notify potential groups or interested parties whenever a new notice is published online.

Public Documents online: Documents such as contracts and agreements could be placed online for citizen review. Documents that only exist on paper would need to be scanned and converted to HTML or pdf for web publishing.

Utility Billing online improvements: Improvements to the online system are desired to also provide for the ability to email utility customers when their bills are ready for viewing online. Additionally, it is desired to provide an e-check service such that a utility customer could make a payment on the website by issuing an e-check that would draft the customer's bank account. Both features are slated for future releases in SunGard HTE's software.

Business Licenses online: A turnkey HTE application exists to provide this web functionality that interfaces into the existing HTE business license system. The software could be purchased and added to the existing Click2Gov server that also supports online Utility Billing and Building Permits.

Complaint Tracking/Work Orders online: From our website, citizens could select from various categories of issues (e.g. potholes, dog-at-large, trash pickup, etc), enter the pertinent address and contact information and route the "work order" to the appropriate departmental contact. The database would track all actions pertaining to the original request and provide reporting capabilities on the collected data.

Time and Attendance: A more automated method to replace employee-completed written timesheets was desired. A small committee led by Lori Carnahan is currently investigating software options. Various time entry options including traditional time clocks as well as scanned employee cards are methods to capture and record actual time worked. This front-end time and attendance software would then need to interface to the existing payroll system to capture bi-weekly hours for payroll production.

Budget recommendation: Maintain the existing $50,000 budget for 2005 in the E-Gov account in the General Overhead Fund: 001-1065-555.33-36