

INFORMATION TECHNOLOGY STRATEGIC PLAN

Purpose

The Strategic Information Technology Plan for the City of Mountlake Terrace (the City) directly supports four of the City's goals:

- Goal #1 to protect and enhance the City's financial health and stability
 - The foundation of the strategic IT plan is to protect the City's investment in computer systems and to ensure stable computer operations for the software that maintains our financial records.
- Goal #3 to review and prioritize capital infrastructure needs and implement projects
 - This CIP calls for the City to investigate opportunities to develop WiFi or broadband Internet services. There are two potentially compelling uses for these services: first to enable mobile computing for departments such as Police, Community Development, and Public Works and as a service to the community to provide community access and economic development.
 - Record keeping for infrastructure.
- Goal # 4 to develop and implement more effective communication and outreach with the community
 - This plan supports this goal by outlining a strategy to upgrade the web site and publishing software, while also providing an information kiosk in City Hall and evaluating other E-government tools for our citizens.
- Goal #5 to maintain appropriate and essential public services in cost-effective manner
 - This plan supports the technology enhancements to streamline operations including business licensing, electronic document creation, recreation registration systems, GIS systems, and systems to monitor our Public Works infrastructure.

Focal Points

As the City moves forward to maintain, protect and extend and protect its technology resources, some key issues require special attention:

Microsoft's Upgrade Cycle: The City will be upgrading to the new releases of many Microsoft products including the operating system, database, email server and office productivity software. This follows the City's previous policy of skipping every-other MS upgrade (i.e., XP). Upgrades are required by Microsoft's policy of ending technical support for systems more than 2 generations old.

Keeping Hardware Standards Up-to-Date: Newer software regularly demands faster computers and the Microsoft upgrade cycle may obsolete some of the existing PC's. This results in an accelerated PC replacement schedule or an increase in hardware upgrades.

IT Staffing: The growing hardware and specialized software IT demands of the City will require evaluating the structure of IT and adding an additional employees in 2007.

Mobile Computers/WiFi: The Police, Community Development and Public Works departments view mobile computing as very necessary in the near future. Additionally, the City may consider implementing a public WiFi network as a public service to its citizens.

Network Security: The network will require continued investment to protect it against the growing threats of viruses and hackers.

Consolidating Geographic Information: The City's basic infrastructure (streets, water, sewer and storm water) is defined by maps and engineering drawings that are based on geographic locations of facilities. The proper functioning and continued operation of this infrastructure depends on regular and special maintenance. This basic geographic information ties together work done by multiple departments. Having it consolidated increases efficiency coordination to better serve the community.

Protecting Public Records: Over 70% of the City's legal and letter sized documents (The city has tens of thousands that are required to be stored in perpetuity) have been archived to microfiche. Systems and software have been acquired that allow the City to move the scanning and electronic archive in-house. The next challenge is to implement those systems and develop processes to efficiently transition paper documents into an electronic or microfiche format.

This report presents a work program and budget for sustaining and evolving the City's Information Technology to support ongoing business processes and priorities while focusing on these key issues. It is organized into three main sections:

Technology Hardware that supports citywide information technology

Citywide Software used across all departments

Departmental Specific Software focusing on individual departments

Each section identifies significant issues and plans, and explains budget items in the attached **6-Year Summary of Technology Capital Projects**

1. Technology Hardware

1.1 Secure Computer Facility

The City's computer facility will use space within the new Fire Station 19, which has been designed and constructed as a secure facility with access to emergency power. Space, in the new fire station has a designated electrical room that has been upgraded to provide a secure computer facility, including network equipment connecting the City to common-carrier telecommunications lines. The transition to the new fire station facility will be completed in 2006.

To take advantage of the new secure facility, servers and related network devices will be configured into two racks. Two Uninterruptible Power Supply (UPS) devices will power each rack with sufficient capacity to power 6-8 servers, and to support operations for at least 15 minutes after a power failure to allow for an orderly shutdown. The City's back-up generator would support longer-term operations during extended power failures.

A third rack and UPS will be installed in 2007 to accommodate planned growth in servers and network devices and the consolidation of servers to the secure facility. The three racks are expected to support the City's server requirements through 2010.

\$1,200 is proposed in 2007 for a third server rack. \$3,000 is proposed each year of the CIP to replace the UPS systems.

1.2 Microsoft Software Upgrades

The 2004 IT Plan recommended that the City continue using the Microsoft 2000 product line through 2006. Then upgrading software to the next release in 2007-2008. This strategy avoids one generation of software upgrade costs in 2005-2006 by skipping the XP workstation and 2003 server product lines, but stretches the update cycle as far as practical and prudent (Microsoft ends technical support for products more than two generations old).

Microsoft has announced release dates of late 2006 or early 2007 for its next generation of products. The new operating system is named Vista and the office productivity software will be named Office 2007. The email server will be named Exchange 2007.

The City currently uses Microsoft Windows 2000 Server, Windows 2000 Professional and Office 2000 for software for its servers and workstation computers. These software products are licensed through an economical State of Washington contract (MS Enterprise Agreement). This method reduces license costs by approximately 30%.

New versions of MS SQL Server will also be required to stay compatible with the MS upgrades. SQL Server is the database engine that is used to run the City's major business applications including Munis, Class and CarteGraph. The SQL Server will be upgraded as these servers are replaced: \$1,350 in 2008 for CarteGraph; \$2,257 in 2009 for Class; \$7,830 in 2010 for Munis and \$1,350 in 2012 for CarteGraph.

The City plans to install Vista during 2007-2008 likely waiting until the first service pack has been released. (The service pack will fix the bugs that are inherent in a new software product). The City will likely upgrade its systems in phases. In Phase I the workstations will be upgraded to Vista. In Phase II the servers and database software will be upgraded to the new technology as the servers are scheduled for replacement or as otherwise dictated by the needs of primary business applications such as Munis, Class and CarteGraph.

The City will test the Vista applications by initially installing the software on a test machine. Tests will be performed to ensure that all critical software applications are compatible and will function as needed with existing servers and network connections.

This plan proposes to purchase the software licenses in 2007 and install the upgrades in 2007 and 2008. Approximately \$76,000 is proposed in 2007 for Microsoft licenses and is repeated again in 2012. An additional \$7,500 is proposed to upgrade other software such as Visio, MS Project and MS Publisher in 2007.

Contract technical staff to assist with the upgrade is proposed as follows: Workstation OS Software - \$2,160, Office Productivity Software - \$432, Server OS - \$7,425, Mail Server S/W - \$1,650.

Note: Microsoft has yet to release its hardware specifications. Therefore the implementation schedule and hardware CIP could be impacted if significant hardware upgrades are required to operate the software.

This planned upgrade schedule falls within Microsoft's timeframe to continue supporting the older Microsoft software the City uses.

Microsoft Support Schedule

| Product Name | General Availability | Mainstream Support Ends | Extended Support Ends |
|--|----------------------|-------------------------|-----------------------|
| Windows 2000 Professional | 31-Mar-2000 | 30-Jun-2005 | 30-Jun-2010 |
| Office 2000 Professional | 27-Jun-1999 | Review note 1 below | 30-Jun-2009 |
| Windows 2000 Server | 31-Mar-2000 | 30-Jun-2005 | 30-Jun-2010 |
| Exchange 2000 Server | 29-Nov-2000 | 31-Dec-2005 | 31-Dec-2010 |
| Internet Security & Acceleration Server 2000 | 18-Mar-2001 | 31-Mar-2006 | 31-Mar-2011 |
| SQL Server 2000 Standard Edition | 30-Nov-2000 | Review note 2 below | Review note 2 below |

1. Microsoft will continue to offer mainstream hot-fix support for Office 2000 through June 30, 2004. In addition, no-charge incident support and personal pay-per-incident support will continue through June 30, 2005. The Office 2000 extended support period will last from July 1, 2004 through June 30, 2009.

2. Mainstream support will end 2 years after the next version of this product is launched. Extended support will end 5 years after Mainstream support ends.

1.3 Workstation Replacement

The City is replacing PCs on a regular four-year life cycle. Interim upgrades can be costly, so the PCs are configured at purchase with adequate capacity (processor speed, memory, etc.) to last for their expected four-year life.

The new MS Vista release may require that PC's be replaced or upgraded on an accelerated schedule. Memory upgrades to existing computers at today's memory prices can be a cost effective method to upgrade a PC. However, it is not currently cost effective to upgrade a PC's microprocessor.

A gradual increase in the City's inventory of PCs is also expected with automation of more business functions and to the extent that staffing levels increase over time.

PC replacements are budgeted at 24 PCs per year for a total of 96 PC's on a four-year cycle. PCs are estimated to cost approximately \$1,200 each, including tax and shipping.

The City owns three laptop computers and plans to acquire a fourth in 2007. \$1,800 is proposed

for an additional laptop in 2007 and \$1,800 thereafter as part of the four-year replacement cycle.

The City will be increasing its investment in field-capable laptop computers for Community Development, the Police Department, and Public Works. These expenditures are detailed in the section of this document titled Departmental Applications, and are also on a four-year replacement cycle.

Specifications for PC purchases are updated annually or more often as technology standards evolve. The release of Microsoft's "Vista" product line in 2006-2007 is expected to require significantly more powerful computers.

The following PC purchase specifications are suggested:

| Performance Factor | 2007-2009 | 2010-2012 |
|---------------------------|------------------|------------------|
| Processor Speed | 3.4 – 4.0 GHz | 4.0 – 6.0 GHz |
| Memory Size | 2 GB | 3 GB |
| Disk Space | 80GB | 120GB |

1.4 Monitor Replacement

Monitors don't generally need to be replaced as often as PCs. This plan contemplates replacing monitors every six years, while PCs are replaced more frequently, every four years.

Cathode Ray Tube monitors (CRTs) are being superseded by **flat-panel monitors** that take less desk space, use less electricity, and are easier to read. Currently about 20% of the City's CRT's have been replaced by flat-panel monitors.

Larger monitors for use in electronic drafting and mapping applications like AutoCAD and GIS are more costly, but the benefits of replacing large-format CRTs with flat-panel monitors are even more significant than for standard monitors. Large monitors (typically 20" diagonal) are commonly used for AutoCAD and GIS because both eyestrain and desktop crowding are significantly reduced. Graphical applications like AutoCAD and Arcview may require high-performance video cards that "paint" large images faster than built-in video chips. Primary AutoCAD and GIS users should be equipped with two monitors of similar size. Twenty-inch flat panel monitors currently cost approximately \$550.

\$4,800 per year is proposed for citywide monitor replacement.

1.5 Printers

The City owns twenty black and white laser printers, three color printers, one large plotter, and one 11x17 color printer. The City anticipates replacing 20% of these printers per year. A cost of \$1,500 is proposed for each black and white printers and \$2,500 for color printers at an annual cost of \$8,500.

An additional 11x17 color printer is proposed in 2009 at a cost of \$3,500.

\$10,000 is proposed to replace the plotter in 2010.

1.6 Scanners

The City acquired a second desktop scanner and associated services from Micro Com Systems in 2006. Scanners are estimated to have a four-year life and are scheduled for replacement at a cost of \$1,000 in 2009 and 2010.

1.7 Projectors

The City owns three projectors and plans to acquire an additional projector. \$2,000 is proposed for an additional projector in 2007 and \$2,000 thereafter as part of the four-year replacement cycle.

1.8 Network Upgrades

The City has deployed a modern network architecture including 1,000 Mbps backbone circuits, switches instead of hubs, and 100 Mbps to the desktop over most of the campus network. \$5,000 per year is proposed as a replacement schedule for the routers and switches.

Outlying offices at Public Works and Recreation use relatively slow (1.5 Mbps) fractional T-1 network connections. These network connections over Internet circuits have been reliable, but their relatively slow speed coupled with the high bandwidth requirements of the software applications requires that business servers be located at Public Works and Recreation.

The City will evaluate the installation of fiber optic circuits to Public Works and Recreation in 2007. When such circuits become available, reliability should be more assured, and wide-area network speeds could be increased to 1,000 Mbps.

The fiber optic connections will provide the added benefit of reducing the T-1 fees, enable the Public Works and Receptions servers to be moved to a secure server room and improve the system performance between remote locations and city hall. Locating all business servers in a single server room will make it more efficient and cost effective to manage and back up the servers.

The fiber optic connection could also make it possible to implement voice over internet protocol (VOIP) which could result in many benefits including telecommuting, caller ID, call waiting, three-way calling, and other modern telecom features.

\$5,500 is budgeted annually for replacing and/or upgrading network cabling, based on historical experience.

Network security: Network and data security are critical priorities, and the City has already implemented firewall protection and pervasive anti-virus protection. Secure Virtual Private Network (VPN) technologies are used to secure network connections over the Internet. The firewall is scheduled for replacement in 2008 at an estimated cost of \$5,000.

The 2005 plan proposes to acquire and install anti-spyware software to protect the City's network. \$3,500 was budgeted to fund this software. Network based solutions will be evaluated during 2006. Usage in succeeding years will depend on emerging threats and the availability of cost-effective software products. \$5,000 per year thereafter will provide optimum coverage.

Malicious network attacks are growing threats that are expected to intensify. This plan proposes that the City should install an Intrusion Prevention/Detection Server (IDP) in 2006. Current information suggests the use of a network appliance such as the Tipping Point series for strong protection at an economical cost. The IDP will likely have a 3 to 4 year useful life and will therefore be scheduled for replacement in 2009/2012 at a cost of \$12,000.

\$12,000 is proposed to upgrade and replace the backup tape drives in 2008 and 2012.

1.9 Server Upgrades

Servers are replaced on a four-year cycle. Timely replacement helps to ensure reliability and allows economical capacity upgrades. Servers have to be highly reliable and powerful.

Servers are purchased to support the expected workload over their expected service life. After replacement, older servers are sometimes redeployed to support temporary or less critical functions where breakdowns would be more tolerable.

The CIP budget includes funds for replacing servers at an average unit cost of \$6,500.

Five additional servers have been added over the last two years:

- Database Server for Recreation
- Credit Card Server for Recreation

- Database Server for Public Works
- Intranet Server for GIS
- CH6 Data Storage

One additional server will be added in 2006/2007:

- Database Server for GIS

The City currently operates thirteen servers, as described below.

| | Server | Processor | Install | Replace |
|--------------|--|------------------------------------|------------------------------|-----------|
| 1. | CH1 Terminal Services | 2 x 1.8 GHz | 2002 | 2006/2010 |
| 2. | CH2 Exchange Server | 2 x 1.8 GHz | 2002 | 2007/2011 |
| 3. | CH7 DC & AV Server | 2 x 3.06GHz | 2004 | 2008/2012 |
| 4. | CH8 DC File & Print | 2 x 3.6GHz | 2005 | 2009 |
| 5. | CH6 Data Storage | 2 x 2.4GHz | 2004 | 2008/2012 |
| 6. | PD2 Police Department Server | 2 x 3.8GHz | 2005 | 2010 |
| 7. | REC1 Recreation Pavilion Server | 1 x 933MHz | 2001 | Retire |
| 8. | Rec2 File & Print | 2 x 3.6GHz | 2005 | 2009 |
| 9. | CH9 Intranet Server (IIS) for GIS | 2 x 3.8GHz | 2005 | 2009 |
| 10. | Rec4 Credit Card Verification Server PC Level | 1 x 3.4GHz | 2005 | 2009 |
| 11. | CH5 Munis SQL Server | 2 x 2.8GHz | 2003 | 2006/2012 |
| 12. | REC3 Class (SQL) Recreation Pavilion | 2 x 3.6GHz | 2005 | 2009 |
| 13. | PW1 Cartegraph (SQL) | 2 x 3.06GHz | 2004 | 2008/2012 |
| | GIS Database Server | Not acquired at time of writing | 2006 | 2010 |
| | Permits Server (SQL) | N/A | 2007 | 2011 |
| Read only | AS/400 Legacy Financials & UB Server | | Used for archival only | |

1.10 Disaster Planning

The City's IT disaster plan should be enhanced and coordinated with the Emergency Operations Center (EOC) plan. Communication is critical during an emergency and redundant IT and communications infrastructure should be considered.

1.11 IT Staffing

The City's IT operations needs are supported by one full time help desk support technician and a part time contractor. The help desk support role has grown to include network engineering, network administration, administering the SQL Server databases, managing the IT contractor, backing up all critical data, and developing the 6 year strategic IT plan.

Some of the metrics that can be used to demonstrate the size of the IT operations include:

- 96 PC's
- 175 network users
- 4 separate facilities
- 13 servers
- 8 MDC's (mobile computing devices in the police cruisers)
- 20 black and white and 4 color printers
- 2 hand held water meter reading devices
- Routers, switches, firewalls, intrusion prevention/detection, etc.
- 1st line support for all software applications
- Software license audit and compliance
- Technology acquisition and purchasing

The IT operations role is becoming more critical as the technology footprint expands. Therefore the IT resources and expected service levels should be evaluated in 2007 as part of the employee classification study and benchmarked with similar sized cities. The City plans to increase the IT operations staff to 2 FTE's in 2007.

1.12 IT Facility

The City's IT staff currently share a cubicle that is a 65 sq. ft. This cubicle serves as both office space and workbench. Alternative facilities should be considered as soon as practical. For example, there may be space within the fire station that could be used as workbench. Note: It is important that the two IT staff work near each other because proximity promotes coordination, consistency, teamwork, trouble shooting, and training.

2. Citywide Applications

2.1 Munis

The Munis software product was implemented for utility billing, general financial management, and payroll processing in 2004-2005. The Munis implementation allows the retirement of the IBM AS-400 computer. The AS-400 will be retained for a period of time for accessing older records. During 2006 Munis will be evaluated for its ability to support Business Licenses and Animal Control. If these modules meet the functional needs of the City they will be implemented in 2007. The long-term plan is to continue the Munis upgrades as they become available and to continue to invest in Munis through training, report writing, and fully utilizing its advanced features.

2.2 Credit Card Payments

In 2006 the City intends to implement a web based credit card service to enable citizens to pay their utility bills with a credit card. Over the long term the City intends to use a single payment processing system to accept credit card payments for most fees accepted by the City including animal licenses, business licenses, animal boarding fees, permits, certificates of occupancy, civil violations, infractions, court fees, passports, maps, and requests for documents. This plan would leverage Active Payment System, which is the credit card verification software installed in 2005 for Recreation. The Active Payment System will be evaluated in 2006.

\$43,000 is proposed for 2007.

2.3 Records Management

Two broad classes of documents are involved:

- Maps and drawings.
- Letter- and legal-sized documents.

Maps and drawings: There are legacy maps and drawings that exist only in hard-copy format without archive copies. It would be prudent to capture these maps and drawings into a digital format for archive. The value will be recognized when the digital maps and drawings can be leveraged through the GIS system. A GIS layer could index all the maps and drawings related to a specific geographic area. Indexing by topic such as, “short plats” may be another effective method. The cost of indexing is difficult to estimate, as an indexing methodology has not been identified.

\$25,000 is proposed in 2007 and 2008. \$5,000 is proposed in each of the following years for creating archived copies of maps and drawings.

Letter- and legal-sized documents: Letter- and legal-sized documents, including documents containing sketches, photos, and drawings, can be optically scanned and stored electronically and also converted to microfilm and/or optical disk. Due to the volume of accumulated archival files, and the need to handle paper in various conditions, the initial work to convert the existing documents has been contracted out to specialized firms.

The City has made significant progress in its records management function. Over 70% of the original letter and legal-sized documents have been archived to microfiche or have been purged according to the data retention policy. The next challenge is to develop a process to efficiently transition current and active documents into the records management system.

There does not seem to be consensus regarding the business processes that will be implemented for the ongoing electronic capture of these business records. This is a business process that will require guidance and sponsorship from the top level of the organization.

2.4 Interactive Voice Response (IVR)

The IVR program vision is to provide better customer service by enabling customers to access more City services and information using the keypad on their phone

The IVR can also be used by City staff for field data entry eliminating the need for PDA or laptop computers.

Some specific applications of this technology are in the Police, and Community Development Departments. Examples of these applications are described within the departmental applications.

\$70,000 is proposed in 2007 for these IVR programs.

2.5 Geographic Information System (GIS)

The GIS program vision is to build an integrated, enterprise land-based information system with easy access by all staff levels. The improved system will provide cross-departmental access to maps and information about property, addresses, land use and infrastructure.

For many years the City has been investing in developing this information by specialists in Planning, Engineering and Public Works. The new program aims to consolidate this investment and make services available in an orderly central database.

IT Resources for GIS

The IT Plan and CIP support the GIS Plan by providing for the following resources:

GIS Servers: Per the GIS plan, a new intranet server was purchased in 2005 and a GIS database server is scheduled for purchase before the end of 2006. Single-user Access database versions have been used during 2005-2006 and then upgraded to SQL Server database versions in 2007. The necessary server computers and intranet software (Microsoft IIS) are budgeted under Network Equipment and Network Software.

Public Access: Plans for providing public Internet access to GIS maps and drawings will be developed in 2008. Costs for public access to GIS data are expected to be negligible as the maps are expected to be made available from the City's existing server and website.

GPS Receivers: According to the GIS plan, the City has purchased one GPS receiver to establish precise location points for facility assets and geographic features. This plan forecasts the purchase of a second unit in 2008. The cost of each unit is estimated at \$8,000.

Upgraded GIS Software: According to the GIS plan, existing outdated software products would be upgraded to newer and more capable versions. Two additional ArcGIS View licenses were purchased in 2006. There are not any addition user licenses proposed in this CIP.

Large-format Plotter The City's large-format plotter was replaced in 2004 with a new plotter capable of printing engineering drawings, GIS maps, and aerial photos.

The IT CIP includes \$10,000 for replacement in 2010.

11X17 Color Printers: The City has acquired an 11X17 color printer that is used to print copies of electronic maps, drawings, and photographs for customers and for internal use. Such printers have four-year replacement cycle.

\$3,500 is proposed in 2009 to purchase an additional printer.

3. Departmental Applications

3.1 Parks and Recreation

The City has successfully replaced its automated recreation system. The new system, "Class", integrates membership, program registration, facility booking, and point-of-sale functions including credit card verification.

It is expected that Class will be a viable system for many years and that the City will make maintaining this system a part of its bi-annual operating budget. In the future additional software modules such as league scheduling or remote light scheduling may be evaluated.

Public web access to the system has been implemented in 2006, a full year ahead of its 2007 plan date. This will enable on-line registration and facility booking.

In addition to on-line registration there are plans to implement a self-service kiosk in the recreation center.

\$5,000 is proposed to purchase the PC and printer in 2007.

The same credit card verification software implemented for Recreation will later be used to support credit card payments for Utility Billing, Licenses, Permits, and other business functions. Using a single credit card verification server for all applications should be more economical overall. Additional software licenses would be required for each additional application using the verification server.

3.2 Finance

AMSI is used to track the City's capitalized and attractive assets. 2006 will be spent identifying assets and creating records in the AMSI system. Barcode technology will be evaluated for improved tracking of these assets.

\$5,000 is proposed for the acquisition of a barcode system in 2007.

3.3 CSU

Meter Reading Devices The Radix hand-held meter reading devices were replaced in 2004. They are expected to have a five year life.

\$6,000 is proposed for replacement of the Radix devices in 2010.

3.4 Public Works

The Public Works Department is in process of converting from manual paperwork systems to an automated system for work orders and maintenance management. CarteGraph was acquired in 2005 and the implementation scheduled for 2005 and 2006

Cartegraph was acquired after analyzing two options:

- Additional Munis module
- Public Works specialized system

Munis is developing new software modules for this application. Preliminary information provided by Munis suggests that several modules will be required. The total cost including software license, installation, and training would be approximately \$40,000.

Public Works specialized system: Several representative systems had been investigated and CarteGraph was identified as a system used successfully in neighboring jurisdictions and nationwide.

A phased implementation was planned over 2005 and 2006 to spread costs across two years. Additional temporary staff resources might be required to support implementation, and an additional permanent fractional FTE to enter and verify the work order data. Either solution would require interfacing field data entry devices like tablet PCs or PDAs in 2007-2008, and would incur costs for annual software maintenance.

The remaining implementation tasks include:

- Recording facility asset information so that is accessible in Cartegraph.
- Integrating asset data among maintenance management, AutoCAD, and GIS databases and applications.
- Implementing processes to accurately and time-efficiently collect maintenance work activity data, including labor, materials, and equipment, consistent with payroll time reporting processes.

Public Works believes that additional resources will be required in order to fully implement the CarteGraph system. The resources may include an independent outside expert that can bring leadership and knowledge of public works systems and business processes.

Field Data Access: The GIS plan suggests the future use of tablet PCs by Public Works for field viewing and modifications of AutoCAD drawings and GIS maps. It is possible that other technologies, such as handheld computers or Personal Digital Assistants (PDAs) may be alternative solutions to tablets PC's.

Costs for purchasing tablet PCs or PDAs to access work orders, facilities records, maps, and drawings in the field are estimated at \$10,000/year from the 2004 CIP. The availability and economic viability of such devices should be evaluated in 2006 or 2007 and perhaps be tested in a pilot project before being purchased for operational use.

The CarteGraph system doesn't currently provide standard support for mobile computing devices. The software vendor is working to develop this technology. It will be revisited in 2008 and the CIP expenditure will be delayed to 2009 when \$10,000 will be proposed annually.

Field Communications: Mobile technology can change how work is assigned and reduce the number of trips back to the shop. Text messaging and interactive voice response technologies should be evaluated for improving efficiency and quality.

SCADA Systems: The supervisory control and data acquisition system (SCADA) is used to monitor water supply and provide leak notification. This system is requiring significant monthly maintenance. The software installed on the SCADA is called Rockwell Software.

The existing SCADA system is incompatible with the XP generation operating systems and will most definitely not be compatible with the Vista operating system. Therefore the entire SCADA system, hardware and software, will likely need to be replaced within the next five years.

\$25,000 is proposed in 2008.

Fleet Maintenance Software: ManagerPlus by Qquest Software is the standalone software package that is used to perform vehicle maintenance. We pay \$349 annually for our service agreement with Qquest. The service agreement provides us with unlimited downloads to updates and tech support for the ManagerPlus program.

Cross Connection Software: Tokay is the standalone software package that is used to manage the cross connection program. We currently pay \$360 a year for maintenance. Maintenance allows us to use technical support and free downloads to their updates. Our maintenance is current until 5/28/2007. The vendor is working a new version that will be SQL-based.

There will be a yet-to-be-determined cost associated with upgrading to the SQL version. \$5,000 is proposed in 2009 to upgrade Tokay.

3.5 Police

The Police Department contracts with SNOCOM for its primary automated systems for dispatch and reports. The City provides PC workstations, network services, and technical support for Police operations. The Police Department operates an internal computer evidence lab to investigate potential evidence contained in confiscated computers, hard drives, and portable media. The Police Department has installed mobile PCs in patrol cars, and is seeking more efficient technical methods to allow officers to transfer data to its internal server and to access information from the server. New wireless technologies offer potential cost-effective solutions and these technologies are being evaluated by Snohomish County. Likewise, GIS technology offers solutions that would materially assist in analyzing SnoCom incident data for geographic patterns. Such technology would become feasible by 2008-2009.

County Wide WiFi: Snohomish County awarded a contract to analyze the business requirements and estimate the costs to build a county wide WiFi infrastructure. This Wifi infrastructure would serve law enforcement. The City Police Department intends to coordinate its WiFi efforts with the county efforts.

Police Network Server: The current Police network server was replaced in 2005. It will be replaced again based upon the standard replacement schedule and is budgeted under Network Equipment.

Police Digital Image Server: Police cruiser video is currently stored on CD and inventoried in the evidence room. A digital video image server would provide easier access and an additional means of data backup for video that is needed for law enforcement or other legal reasons. The video image server would not be part of the City's network due to security reasons. The video image server would be directly connected to an archival server that would be located in the secure server room.

\$11,000 is proposed in 2007 for the digital image server and the archive server. This includes 1-Storage Server, 1-PC with 1-large external H.D., 1-License to Symantec Backup Exec and cabling from the evidence room to the new server room at the new FS.

Computer Evidence Lab: The computer evidence lab provides effective support, the need for investigating computer data is expanding. Working with potentially booby-trapped or virus-infected computers requires excluding evidence lab computers from the City administrative network, while providing separate, independent, and untraceable connections to the public Internet. Police investigators also benefit from ready access to technical support from the City's computer technology staff and network consultants.

\$5,000 is proposed in 2007 to replace FRED (Forensic Recovery Evidence Device).

Evidence Room Barcode System: \$22,000 has been proposed in the 2008 CIP to purchase and implement a new system to track items stored in the evidence room.

Police Report Software: Specialized software used for writing police reports will be discussed and evaluated with the officers in 2008. It is very important to that the officers take a meaningful role in this evaluation as their use of the system will mean its success or failure. The implementation of report writing software will be coordinated with either the county Wifi solution or the implementation of an access point in the police parking garage.

\$40,000 is proposed in 2009 for the acquisition of police report software.

Mobile Data Computers (MDC's): Rugged notebook computers referred to as MDC's are installed in the police cruisers.

This plan proposes that the ten MDC's be replaced in 2009 at a cost of \$5,000 per MDC.

Interactive Voice Response (IVR): A citywide IVR system could be used by the police Code Enforcement division. Citizens would be able to log their complaints and violation reports using their phone handsets. The system could then print action reports to be used for code enforcement and could also be used to generate statistical and management reports.

3.6 Community Development

Community Development is responsible for building permits and development permits. Both permit processes use the *Accela Permits Plus* application software for recording and tracking building and development permits.

Permits Management System: The current *Permits Plus* system was implemented in 2001. This product has been costly to maintain and less than satisfactory to use. Ongoing costs for special programming have averaged about \$8,000 per year. It is reaching the end of its functional and economic life. The current software needs to be replaced as technology and business requirements evolve.

\$80,000 is estimated for a phased implementation project during 2007-2008.

Mobile Computing: The use of handheld PDA devices or laptop computers by building inspectors is proposed for implementation in 2007. These devices would access data from the permits application and allow inspectors to quickly report results by selecting checkmark choices on the interface screen for download via docking stations into the permits database.

\$16,000 is proposed in 2007 to acquire three ruggedized laptops for the construction inspector and the two building inspectors. This includes \$1,000 for three laptop-docking stations.

Credit Card Payments: Capability for accepting credit card payments will be added in late 2007, using credit card verification software and hardware implemented with the Recreation Management System. Funding for this was provided in section citywide applications 2.2.

Interactive Voice Response (IVR): The use of IVR could replace the need for handheld PDA devices by building inspectors. The IVR system would collect all of the necessary data and print an inspection report. The inspector would perform the inspection and use IVR to record the inspection results from the field. The citizen could use the automated IVR system to learn the status of the inspection request. This application would provide three significant business benefits; provide better customer service, faster inspection turnaround, and increase the efficiency of the inspectors.

GIS: Community Development is also responsible for the planning, design, construction, and rehabilitation of streets, traffic control, and water, sanitary sewer, and storm water utilities. These planning and design activities require regularly scheduled upgrades of AutoCAD software. As these functions often utilize GIS data and images, the acquisition and maintenance of this software are coordinated with the GIS program.

Publishing Software: Community Development currently outsources the layout of brochures. It is suggested that Community Development use the same brand of publishing software that will be used by Community Outreach and Communications. See the paragraph titled Newsletter in the Community Outreach section of this plan.

3.7 Community Outreach and Communications

The City Manager's office is committed to reaching out to the community and improving communications. Some of their goals include revamping the newsletter and the website so that it is easier to post current and relevant information. **Website:** The website will be revamped in 2006 and it will continue to be hosted by Minature.net for a \$200 annual fee. The website is published using MS Front Page and several City staff have familiarity with this product. Microsoft is discontinuing this software product so the City has decided to convert the website to the Dreamweaver software in the summer of 2006.

Weblog: The use of a weblog or blog may be considered by the City Manager. A blog is web-based publication that can be simply updated by the author. The blog could be a link from the City's website and very accessible to the citizens.

Newsletter: The newsletter is currently published using PageMaker software. Adobe recommends that users upgrade from PageMaker to InDesign and Adobe FreeHand is another option.

\$3,500 is proposed for new publishing software, which would include licenses for Community Outreach and Community Development. Additionally more graphics will be used to present ideas and numbers in a meaningful way. \$1,500 is proposed for graphics software in 2007. Training for these products should be considered in the bi-annual operating budget.

Document Publishing: The City will publish most of its digital documents in PDF format. PDF format is the industry standard to read, control and secure digital documents. The Acrobat software is needed to convert documents into the PDF format.

\$1,000 is budgeted in 2007 to acquire two licenses of Adobe Acrobat Professional.

Council Meetings: Council meeting agendas and minutes must be recorded and retained for six years. Granicus provides software to archive and publish meeting minutes. It also provides web-casting solutions that allow public meetings to be captured digitally and broadcast over the Internet. This technology can improve communication within and outside the City. Staff can monitor the progress of the meeting from their PC and can then join the meeting when their agenda item is on queue.

\$30,000 is proposed in 2007 for the Granicus solution. The community access channel may provide another avenue to present council meetings to the community. Note that the City may need to acquire additional Internet bandwidth depending upon how this application is used. Additional bandwidth could cost up to \$480 per month.

Self-Service Kiosk: The City intends to install a self-service kiosk in the lobby of city hall. This will provide citizens with access to the City's web site in order to pay utility bills and register for classes.

\$5,000 is proposed in 2008 for this self-service kiosk.

3.8 Engineering

The City Engineering Department is primarily responsible for the following three software applications: CAD, Traffic and Accident.

Computer Aided Design (CAD): The Engineering Department has licensed three computer aided design products from AutoDesk Corporation: AutoDesk Map/3D, AutoCAD 2005, AutoCad Lite 2006.

The City subscribes to software maintenance and receives annual software upgrades. The Engineering Department has made the decision to implement upgrades every two years. This reduces training and transition costs and also allows time for the early adopters to prove the software is stabilized. The department must also coordinate the compatibility of the three products when making the decision to upgrade.

The City does not anticipate needing to acquire any additional AutoCad software licenses.

Traffic Counting: The Engineering Department uses a manual traffic board for counting intersection traffic. The manual process requires that the user stop counting every 15 minutes, tabulate and record the results and then re-key the data into a PC.

\$850 is proposed in 2007 to acquire an electronic traffic board that will tabulate the traffic counts and download the data into a PC.

Accident Data Software: The Engineering Department has been using a software package for accident data tracking and reporting. Services provided by the State are used and the City will not need to replace this software package.