

## Technology Services Annual Report 2006

The Mission of Technology Services is to develop and maintain efficient, cost-effective information and telecommunications systems for the Town of Framingham; to assure their successful utilization and enhance productivity by providing the necessary up-time and support services to its customer base; to uphold the Town by-law as it relates to Technology (Section 17); and to provide excellence in Public Service consistent with the Town's Customer Service Policy.

The Technology Services Department is organized by program into 7 service divisions and staffed by 7 full-time equivalents including the Director. Exhibit 1 provides a breakdown of the department's FY '07 budget by program. In addition to the budgeted service divisions, Technology Services also provides support to the Department of Public Works enterprise funds for which the general fund is reimbursed and in 2006 at the request of the Finance Committee and Town Meeting has worked closely with the new Library Director to identify the technology requirements of the Library and begin to assume responsibilities for their ongoing support with a \$25,000 budget created by a one-time reduction in financial system maintenance. Although Web and Retirement Services are also provided by the department there are no corresponding personnel or operating budget appropriations nor is there a direct appropriation for School financials and payroll supported through the Applications/MIS division.

Over the years of my tenure, the Technology Services budget as a % of the general fund budget has steadily held at 1%. In 2006, however, the budget

calculates at .6% of the general fund budget; 8% of which (\$83,044) is reimbursed through the enterprise funds. In fact, the DPW allocation is more than the entire budget for User Services which supports 375 users with a staff of one and a diversity of applications and requirements. (See Exhibit 2).

**Administration** is responsible for the preparation of the department's program-based budget, capital and project planning, overall operations management, policies and procedures; development and review of technology bids and requests for proposals (RFPs); advisory to Town Counsel on technology contract negotiations, town-wide technology acquisitions and research and development.

The primary responsibility of **Applications and Management Information Systems** is support for the Town and School Financial system that includes general ledger, budget, purchasing and accounts payable, fixed assets, human resource payroll and personnel, tax and utility billing, and revenue collections. Support includes end-user administration and training to 57 Town and 170 School users along with systems administration; version control and release testing. The Town utilizes fully-integrated municipal software provided by Tyler-Munis.

The ongoing development and support of property-based applications that include permits, licenses and inspections is the primary focus of **Data Base Services**. All Town departments share the same centralized property database and application provided by Accela, the same software used in New Orleans to expedite the processing of permits and inspections subsequent to their devastating hurricane, Katrina, in 2005. The ability to share data

coupled with town-defined, rules-based workflow not only streamlines processes but has also enabled the integration of these on-line systems for real-time Internet access, display and mapping.

In 2006, there were a per diem average of 466 assessing; 52 permits and 39 mapping inquiries per day. The availability of this information via the Framingham town website demonstrates significant gains in the delivery of customer service as well as productivity gains for the departments otherwise charged with providing this public record data.

Additional customer service initiatives and examples of the division's constant commitment to "best of breed" practices include an on-line customer service request form (CSR) and a list-service for town announcements and notifications of postings. 291 CSR requests including streetlight outages and pothole reports were received in 2006 and directed to the appropriate departments for follow-up while 303 web users have signed-up to receive postings and announcements from a variety of categories including town meeting. The division also provides support for GIS and department data bases. Examples are a web-based Cultural Council database of events, artists, organizations and venues and Parks and Recreation on-line program registrations.

The Town's technology infrastructure includes a municipal area fiber network (MAN or I-Net) connecting 50 town and school locations; within building local area networks (LANs) and the wide area network (WAN) that provides access to the Internet; all supported by **Network Services**. Network Services is also responsible for all hardware planning, installations, maintenance and support including 39 servers, network switches in 30 town locations and the fiber I-Net

head end supervisor switch located in Town Hall; 24 x 7 proactive monitoring and non primetime upgrades.

In addition to network management and security, diagnosing computer viruses and filtering SPAM (unsolicited, unwanted email) are increasingly time consuming tasks for this one person division even with detection and filtering software. In this past year alone 81% of emails received by the Town were tagged as SPAM. The actual number of 4.4 million is up from 2.5 million from last year. Maintaining a 100% virus-free track record is a considerable effort with 1330 new viruses, worms and Trojans identified and researched and over 96,279 viruses blocked in 2006.

**User Services** provides end-user Help Desk support, set-up and training, email, Internet, Windows and applications' systems administration; peripheral troubleshooting, hardware and software inventory maintenance, policy and licensed software audits. User Services is also responsible for PC, printer and software upgrades, daily backups, and Town Meeting equipment and presentation assistance.

In 2006, this one person division supported 316 PCs and 98 laptops with 375 users, including 53 new users; answered 1573 Help Desk calls of which 1428 were resolved on the same day; and installed 191 new or replacement PCs in conjunction with the upgrade of our 47 obsolete 400 Mhz PCs. In addition to attendance at the annual and all special town meetings to ensure equipment in working order, User Services assisted in the development of 55 town meeting presentations in the course of the year.

**Voice and Office Services** is responsible for day to day administration of the

department including budget and payables, vendor quotes and administration, telephone contracts and billing audits for school and town local and long distance phone services.

The Manager of User Services has also assumed responsibility for the planning, implementation and user training of the Town's IP telephone and voice mail systems along with Town telephone adds, moves and changes previously contracted with the old system to outside vendors. The effectiveness of the system was proven in the overnight move of the Building Department from the basement level to the second floor of Town Hall earlier this year.

In the absence of a designated webmaster, this position also has played a primary role in the development, timely postings and ongoing support of the town's website [www.FraminghamMA.gov](http://www.FraminghamMA.gov).

**The Public Safety Systems Administrator** provides computer and technical support for Police, Fire and the Emergency Operations Center. This position was consolidated and incorporated into Technology Services in 2001 to enable the Police and Fire Departments to focus their personnel on public safety. 2006 accomplishments are highlighted in goal 3 below, not the least of which was a multi-year due diligence effort to evaluate state of the art Public Safety computer technologies leading to a joint Police, Fire and Technology Services recommendation to stay with Keystone (the current vendor) and upgrade to their latest software release.

The driving force behind the systems upgrade is the need for new servers. The current Digital Equipment Alpha servers (one in Fire Dispatch and one in Police Headquarters) were purchased in 1994

and are obsolete. (The current single user PC standard, 3.0 Gigahertz, is considerably more powerful than these 244 Megahertz servers that support many more concurrent users). Because both Police and Fire use the same computer aided dispatch (CAD) software in a two server configuration, transactions continually post to both systems located in geographically different locations in town so that in the event one system is down the remaining server is capable of dispatching for both.

A capital budget for the upgrades has been prepared and submitted as Technology Services highest priority for FY '08 Capital Budget consideration.

### **2006 Accomplishments**

**Goal 1** for 2006 was to develop and fund a plan for an electronic data archive of 20+ years of on-line data as well as data from disparate and obsolete systems currently stored on various forms of magnetic media. Storage Area Network (SAN) and Network Accessible Storage (NAS) devices were funded by Town Meeting in April, 2005 (\$91,770) doubling storage capacity and providing the foundation for data redundancy and disaster recovery.

The Storage Area Network (SAN) is installed in Town Hall and separates the data from the server enabling the configuration of lower cost servers and a consistent platform for data and recovery. It also enables the backup of this data via the fiber municipal area network to the NAS device located in the Library.

A second component of the plan was the implementation of a Laserfiche document management system as a public documents repository. To date all meeting minutes received in electronic form (over 1000 dating back to

Selectmen's minutes for 1999) have been converted to text for improved ADA compliance; digitally encoded for optical character recognition (OCR'd) to enhance search capabilities; and made accessible from the web. The new system also enables internal users to post approved public meeting minutes directly to streamline operations and ensure timely availability.

A new Munis feature that enables the scanning of paper attachments such as Human Resource employee certifications, resumes, performance reviews and licenses) along with Accounting vendor tax identifications and invoices has also been implemented. About 7000 attachments to date have been integrated with corresponding employee or vendor for easy look-up of original documents.

Other initiatives completed in 2006 include the revision of the capital budget program to facilitate the evaluation and rating process and the decentralization of the operating budget process using Munis instead of spreadsheets.

The next step in this document management and disaster recovery plan and a goal for spring 2007, is to install an off-site, "hot" spare for our financial and human resource systems modeling the same level of redundancy in place for Public Safety. Also in the plan are new reports to facilitate the year end closing of FY '07 in June and the preparation of the School's Department of Education report.

The rollout of the second phase of the town-wide phone system upgrade initiated in 2005 with funding from a Lifeline Grant as well as department and capital funding was identified as Technology Services **2006 Goal 2**. The Cisco Voice over the Internet (VOIP) solution that was adopted as the standard for both

town and school after much due diligence is currently installed on 89 Town desktops. In addition to the Council on Aging, Parks and Recreation and some Town Hall Departments installed in 2005, 60 new users were added in 2006 including the remainder of Town Hall and the Arena. Scheduled for early 2007 is the main library and budgeted for FY 2008 are all Police and Fire locations.

One of the advantages of a Voice over IP solution in a multi-building environment is the reduction in operational costs. School and Town departments using the system can 4 digit dial each other via the municipal area network with no local charge. 58 Centrex lines have been cancelled this year for a total of 86 to date replaced by 344 direct inward dial lines including several at DPW.

As part of the implementation strategy, switching local & long distance vendors thru the state contract has cut rates in half. Customer Service has also improved with the replacement of an obsolete voice mail system; enhanced auto-attendant capabilities; integrated voice and e-mail and a new Town of Framingham exchange.

**Goal 3** provides ongoing support for the network and end-users, existing town-wide applications and department-specific priorities. A performance goal of 99.999% (5 9's) reliability translates to downtime of less than 5 minutes per year) but is essential to achieve and the highest priority goal of the department. By careful planning, software testing, scheduling off-hours maintenance and configuring server redundancy and separate test environments, 100% uptime during prime-time was again achieved in 2006 along with the completion of 91% of help desk calls on the same day.

At the request of the Retirement Board, the department assumed a more active support role this year by assisting in the configuration and installation of a new server; adding it to the town network; implementing automated off-site backups and participating in contract reviews for new software.

Other projects and accomplishments in 2006 include the implementation of the Fair Labor Standards Act (FLSA) as it relates to overtime compensation in the Police Department; the installation of network intrusion detection software to better secure our network; the installation of surveillance cameras at several strategic locations identified by Public Safety; the addition of 6 DPW water and sewer stations to the network; the development of a wireless field inspection module for the Board of Health; the upgrade to the Windows 2003 operating systems for all network servers; the replacement of 47 obsolete (400Mhz PCs); a pilot of wireless field access with the DPW Fixed Assets application and a server upgrade for the Assessing department in preparation for a Computer Assisted Mass Appraisal (CAMA) software upgrade.

While the Police Department uses Keystone for reporting, booking and mugshot applications, the Fire Department uses Firehouse for reporting to the state Fire Marshall's office. A new Firehouse upgrade to release 7 has been installed and is currently being tested. Scheduling and rostering enhancements along with screen changes should make it easier for the deputy chiefs to do quality control checks of reports completed by the officers.

Working in conjunction with the Detective division, police booking procedures, equipment, forms and work areas have been updated, including a new

computer and software upgrade; a new label maker, camera and lighting to meet federal mugshot standards; and a new booking form to track "use of force" along with the ability to more readily differentiate adults and juveniles via a new check off box on the "summons complaint form".

The Police and Fire departments are also testing the Keystone "KeyMapp" system as the first step in the availability and use of maps in all public safety vehicles. The system will have the capability of tracking all units by global positioning (GPS) when all map files are verified as 100 percent accurate. In the meantime, the location of all fire hydrants is being made available from the current information to enable quicker set up and response to a fire. The mapping system is also being configured so that during a major Town of Framingham emergency when the Emergency Operations Center is open, a quick visual update of all calls and equipment (both Police and Fire) will be available at the command post.

Replacement laptops for all Police cruisers were funded in FY '07 and have been purchased and installed in 24 cruisers. Keystone client software and wireless access cards have been added to facilitate preparation of reports from the cruisers. The outdoor wireless access points, deployed at several town locations, facilitate the uploading of these reports and in addition, provide access to the Internet, email and other desktop applications. In-service training of officers in the use of this new reporting capability is ongoing and very well received and a training data base has been set up for the Training Officer to track and report each officer's accomplishments.

Space on the 3<sup>rd</sup> floor of headquarters has been designated by Police for an Intelligence Unit and Incident Command Center and designed to maximize the use of technology. A new large screen interactive display panel and equipment, phones and relevant software has been acquired and installed.

The Police Department has also requested that several stand-alone data bases such as mugshot name changes, firearm reporting, accident reporting and overtime requests and usage be rewritten to integrate with Keystone so that data can be shared and maintenance of the data can be streamlined and are under consideration for development in 2007.

**Goal 4** for 2006 was the redesign of the Town's website for ease of use and ADA compliance along with the conversion of the existing 1500 web pages that comprise the existing site to a content management system to enable decentralized department postings and support. Unfortunately these objectives were unachievable with existing funding and staff resources.

This dilemma identifies the type of challenge and frustration faced by the department. Victims of our own success, we recognize the need and worth to the community but have been unable to meet expectation. This year there were 131,788 unique visitors from 61 different countries and over 600 different cities & towns, a tribute to the "best of breed approach" used in the development effort and the commitment to timely postings of materials. A recommendation and plan has been developed, and the project has been deferred for FY '08 funding consideration.

#### **Strategic Planning - Wireless Broadband Access to the Municipal Network and Internet**

Technology Services has been evaluating wireless broadband access to its municipal area network for several years, piloting various options and keeping abreast of evolving technologies through a variety of sources and has also undertaken several initiatives with various departments, including Public Safety, that have applications ready to deploy to the field.

Only the Police Department currently has field access from their cruisers, however, the low band 150 Mhz licensed radio spectrum is insufficient to support the majority of their applications including interactive database queries, reports and forms.

In addition to the Police Department, there are Public Works water and sewer fixed asset inventories and Geographic Information System, Engineering and Conservation mapping applications; Fire, Health and Building inspections, permitting and licensing applications; Assessor property and owner/occupancy data, Public Safety hazardous materials and business alarm data, that would be valuable and time-saving to access from the field. Desktop applications including email; schedules and calendars; voice mail and access to the Internet as well as outreach applications from Council on Aging and Health, and surveillance and telemetry applications are some of the applications currently available and identified by their respective departments for field deployment.

Municipal wireless access is no longer an option but a necessity. Given the financial impact to adding new employees, specifically health care and retirement benefits, and given that many of our larger departments, including Police, Fire, DPW and Inspectional Services have substantial numbers of mobile workers, the ability to bring their desktop to the field is a way for

these employees to enhance productivity and complete more calls per day. By eliminating duplicate data entry and adding the ability to reschedule follow-up appointments; receive and respond to voice mail, email and phone calls from the field some communities have documented gains of up to two hours per employee per day (close to a 28% increase in productivity per employee).

In addition to customer service, in a Police, Fire or emergency situation there are non-productivity gains as well if just one life is saved due to quicker response and availability of data. For DPW, saving gallons of water with the ability to quickly identify and close a shutoff in the field generates savings and reduces consumption.

The question is more a matter of “how to” obtain broad-based consensus for goals, scope, design and funding. Technology Services has and continues to evaluate various alternatives, issues and funding options. Ubiquitous wireless access to meet municipal and especially public safety needs must blanket the entire town without “dead spots” and incorporate sufficient security and management to satisfy public safety including the ability to prioritize public safety over other applications during an emergency situation.

In 2006, two successful pilots with two different vendors were undertaken to demonstrate mesh wireless technology and uncover previously unidentified issues to be addressed. One pilot demonstrated Tropos equipment along Edgell Road and Water Street. Another pilot with Cisco Systems demonstrated the use of their technology along route 135 during the Marathon in April to manage onlookers, close off street intersections and time the re-direction of traffic as well as enhance

data communications by providing access to on-line Public Safety systems and voice services via Voice over the Internet to the mobile emergency operations center set up for the duration of the event.

Framingham is fortunate to have a fiber infrastructure connecting all town and school locations with additional locations such as water and sewer pumping stations currently being installed. The fiber network called an I-net for institutional network or a MAN for municipal area network was provisioned by RCN in conjunction with their cable franchise agreement. A second network, provided by Comcast, our second cable provider, is used as backup when the primary fails and provides redundancy particularly for Public Safety with automatic failover using the “open shortest path first” (OSPF) protocol.

The fiber I-Net with wireless access points at each location provides an ideal infrastructure for the mesh wireless network using town-owned street light arms to house and power equipment. The 802.11 industry standard protocols make sense for no other reason than their ubiquity. Off the shelf wireless cards are 802.11 compliant and laptops currently come standard with these wireless cards at no additional cost. Multi-radio units also provide use of the newly FCC allocated 4.9 Mhz licensed frequency for segregating Public Safety and as needed for performance, additional radios for backhaul.

Although the primary goal is municipal services, a wireless network also provide opportunities to pilot other ventures such as residential wireless; educational initiatives to bridge the digital divide and economic development incentives to attract small businesses and to seek alternative funding sources for their

rollout including public/private partnerships and grants through the master planning process currently underway and spearheaded by the Planning Board.

### **Summary**

In closing, I would be remiss if I did not acknowledge my staff including:

Ken Harper - Public Safety;

Alan Holt - Data Base;

Susan Joyce-Roy - User Services;

Scott Jung - Applications/MIS;

Jamie Schiavone - Network Services;

and Carly Premo - Voice/Office Services, this year's recipient of a Customer Service award at the annual employee recognition dinner in October.

They are a talented group of people, each with years of individual experience and specialized expertise. Low staff turnover and a combined 152 years of expertise have enabled a continual increase of productivity, minimizing the learning curve while fostering cross-training, and reducing the need and associated cost of consultants to do more with less during fiscally difficult times.

As Director of Technology Services, I continue to play an active role in the Massachusetts Government Information Systems Association (MGISA) as a past president and member of the board. For the past three years I have also served on the board of the MA Digital Government Summit for state and municipal government playing a leadership role in the planning of this annual conference. This past year, I partnered with the state CIO in founding the State/Municipal Wireless Collaborative hosted and staffed by the MA Technology Collaborative to explore technologies and compare and share expertise.

I also acknowledge the Technology Advisory Committee appointed by the Moderator for its support this year. One of our joint projects has been the evaluation and demonstration of electronic voting for Town Meeting and I look forward to other collaborations in the future.

Exhibit 3 charts the paradigm shifts during my tenure from a few standalone PCs in 1993 through the installation of the municipal area network in 1996 and access to the world-wide-web in 1998. The Town's official website was introduced in 2000; the advent of wireless local area networks replaced the need to hard-wire devices in 2002 and the municipal area network was used to deploy a town-wide, Internet based phone system in 2005. In the past year, we have seen a shift in requests for laptops over desktop PCs and a proliferation of interest in field applications as users recognize the versatility and portability of laptops to use both in the office and in the field. Despite many changes in technology over time and ever-increasing demands, staffing has remained constant at 7 FTE's since 2000 and the budget which had been a constant 1% of the town general fund for several years has decreased from 1% to .6%.

Nonetheless, Framingham continues to remain on the forefront of Massachusetts communities in the use of technology thanks to a dedicated, motivated and innovative staff who are interested in researching new technologies on their own and willing to work as a team to solve problems and create success and customer satisfaction.

Respectfully submitted,

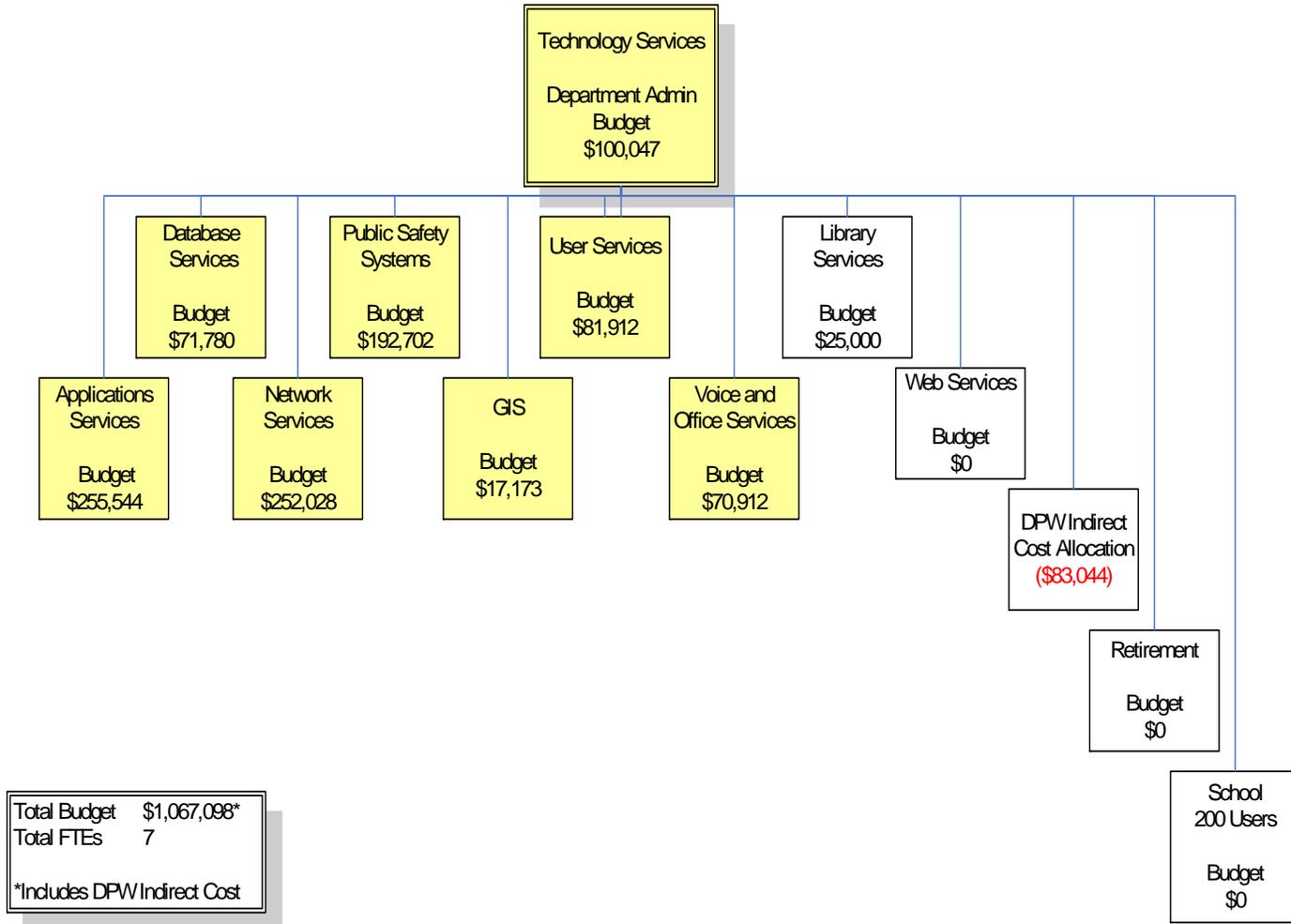
*Kathleen F. McCarthy*

Director, Technology Services

# Town of Framingham

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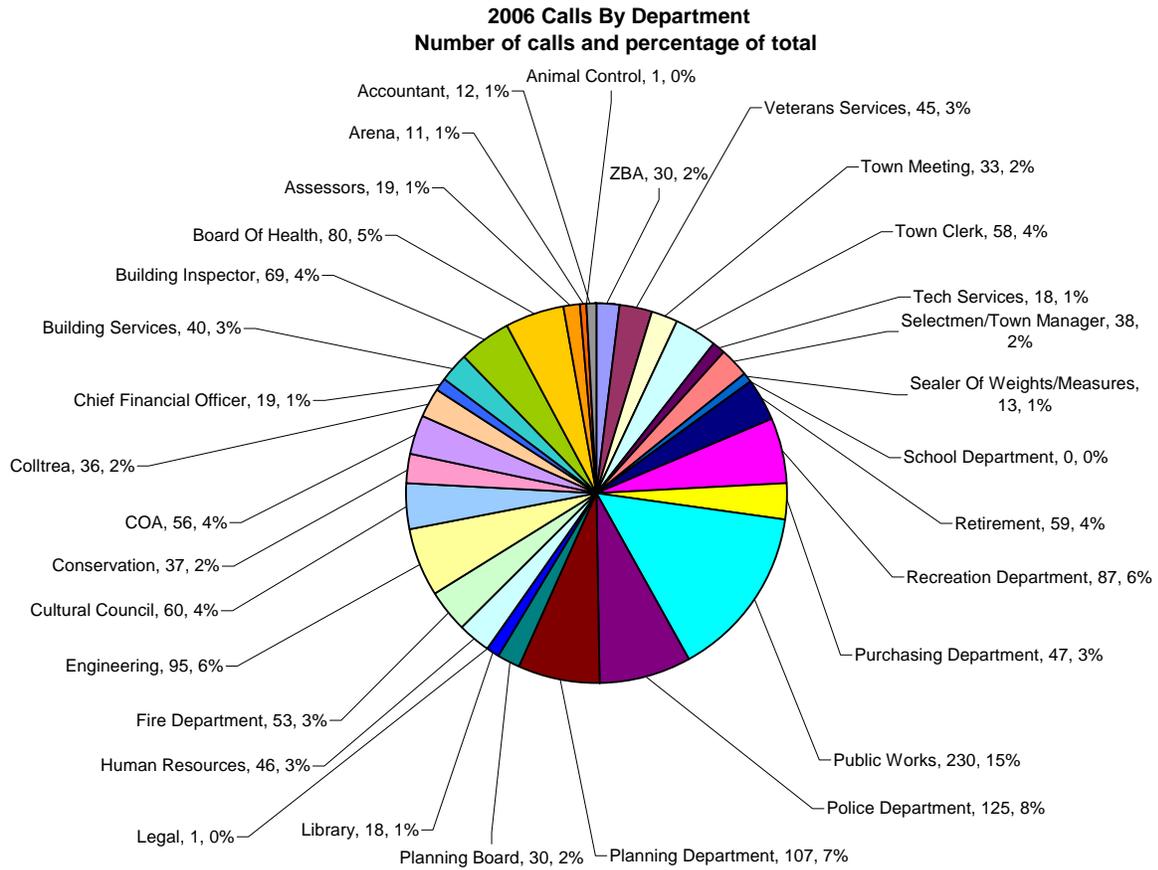
### Exhibit 1 - FY '07 Program Based Budget



# Town of Framingham

## Technology Services Annual Report 2006

### Exhibit 2 – Help Desk Calls by Department



**Town of Framingham**  
**Technology Services Annual Report 2006**  
**Exhibit 3 – Paradigm Shifts**

	<b>FY 94</b>	<b>FY '96</b>	<b>FY '01</b>	<b>FY '03</b>	<b>FY '06</b>	<b>FY '07</b>
<b>Paradigm Shifts</b>	Standalone PCs	Municipal Area Network (I-Net)	World Wide Web/ Internet Access	Wireless Local Area Networks	IP Telephony	Field Access to Desktop and Public Access to Public Info
<b>Op. Budget (% Town G.F.)</b>	\$318,656 (0.7%)	\$633,213 (1.2%)	\$714,034 (1.0%)	\$825,844 (1.0%)	\$1,039,134 (1.1%)	\$1,067,098 (.6%)
<b>Capital Budget</b>	\$617,000 PCs, Net	\$1.352M PS, MIS		\$584,500 MIS Upgrade	\$91,770 Data Storage	\$40,000 IP Phones for Library
<b>FTE's</b>	3	6	7 (PS transfer)	7	7	7
<b>Users/Web Visitors/ PCs/Wireless</b>	33 / 0 33 / 0	274 / 0 204 / 0	350/no stats/ 354/0	391 / 77,300 351 / 15	377/ 118,625 350 / 50	375/131,188/316/98
<b>Servers/Locations/ Wireless Access Points/Cameras</b>	1/1/0/0	7/8/0/0	13/24/0/0	24/26 /2/0	28/29/6/11	39/30/12/12