City of El Segundo, California

TECHNOLOGY AND INFORMATION SYSTEMS

MASTER PLAN

1998-2000
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Kerry Consulting Group

100 W. Foothill Blvd.
Claremont, CA 91711
909-621-6469
FAX: 909-621-7768

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1.0 STRATEGIC DIRECTION

The City of El Segundo is committed to serving the needs of the citizens, business community, and others interested in the community efficiently and effectively. The use of technology is a critical element in being able to provide this service, so the City will endeavor to use it appropriately wherever and whenever it is the most cost effective means to provide convenient, timely, and accurate information and service. The use of technology will be designed to improve the productivity of staff and provide the most efficient means to communicate with every citizen and business in the community. It will also be designed to enhance clear communication among the various departments and services of the City so citizens and businesses can easily report problems or concerns and be confident appropriate action will be taken. Finally, as a tool to manage information, technology will be used to enhance accountability and confidence in the reports presented to City Council, various Commissions, and the public.

1.1 Mission Statement

It is the mission of the City of El Segundo to deploy technology in order to provide fast, convenient, comprehensive, and accurate information to people who live, work, visit, or have interests in the community. The City will make every effort to use the most appropriate and proven technologies in every area.` Our example for the effective use of technology shall be a model for the operation of city services among our South Bay neighbors well into the new millenium.

1.2 Strategic Goals

The following list of goals represents the specific targets for the City technology embodied by this Plan. Within each Goal is a set of one or more Objectives, with fiscal year targets, that represent the City's action plan to achieve its strategic goals.

1.2.1 Goal : Citizens and businesses in El Segundo will have ready access to appropriate public City information.

Objective 1-1 ***The City will provide a web site on which departments can post information for the public.***

Objective 1-2 ***City staff who come in contact with the public will have ready access to all electronic informational databases appropriate to serve the customers.***

1.2.2 Goal 2: Communication and feedback between departments and among staff will be timely and accurate.

Objective 2-1: ***Networked desktop workstations will be provided for all applicable job functions.***

Objective 2-2: Electronic mail will be deployed at all facilities and offices with workstations.

Objective 2-3: Telephone systems will provide integrated voicemail and electronic mail where appropriate.

1.2.3 Goal 3: Data will be collected and entered only once into informational databases.

Objective 3-1: The City will develop a database strategy to integrate information from all computer applications in use in all departments.

Objective 3-2: New applications will include interfaces to existing databases where appropriate to minimize redundancy of information entry.

1.2.4 Goal 4: Staff will be efficient and effective in the use of all City-supplied technology systems.

Objective 4-1: Training will be a key component in the acquisition of all new technologies.

Objective 4-2: On-going support will be budgeted for every new computer system acquired by the City.

Objective 4-3: The City will provide a central Help Desk to channel all technology support questions and issues to appropriate resources.

Objective 4-4: The City will provide appropriate technical support resources, either internally or externally, to support all Orgainzation-wide applications.

Objective 4-5: The City will provide for in-service technology training for all employees required to use computer systems and other technologies as part of their job functions.

Objective 4-6: The City will maintain an appropriate and safe work environment for the use of computers and other technology systems in the City.

1.2.5 Goal 5: The acquisition of new technologies will be coordinated at both the department and Organization-wide (City-wide) levels.

Objective 5-1 The City IS Department will assist in the analysis of all proposed new systems to ensure appropriate connectivity, compatibility and support.

Objective 5-2 The City will develop a process to assist the analysis and prioritization of new computer system proposals.

1.2.6 Goal 6: The City of El Segundo will be a leader in the use of proven technologies for city operations.

Objective 6-1: The City will periodically review technologies used by neighboring cities and technologies used nationwide to keep current with the best proven products and customer services available.

1.2.7 Goal 7: All technologies deployed and used by the City will be safe, secure, and reliable.

Objective 7-1: The City will evaluate and remediate all technology-related systems to ensure year 2000 compliance.

Objective 7-2: All systems will be secured by protected password access.

Objective 7-3: All appropriate systems will be prepared for disaster recovery and other reasonably foreseeable emergencies, including off-site storage of backup media and alternative computer processing sites.

2.0 AREAS OF APPLICATION

The City will provide its administrators and support staff technology tools to assist the gathering, storage, maintenance, and reporting of information to comply with Federal, State, and local reporting requirements, as well as perform specific job functions as efficiently as possible. Those applications designated as Organization-wide [O] applications will be funded and supported as part of the City's General Fund Information Services budget. Those designated as Departmental [D] applications will be funded and supported by individual departments. All applications, Organizational or Departmental, will conform to City standards of connectivity, compatibility, and support. Support for Departmental applications by Information Services will be funded by chargeback to the Department budgets. The products/vendors displayed in the right margin opposite the named application represents the current standard for the that application. If an application is not currently deployed, it may be currently under study for justification/acquisition or simply designated as a strategic future consideration not yet justified because of resource or technological constraints. The Technology Acquisition Process discussed in Section 5 will be applied to both implementing new systems as well as replacing existing systems that become obsolete or problematic.

2.1 City-Wide

Not every employee of the City requires access to the systems and informational databases used by the City. However, for those who do, certain standards will apply and the City will provide the necessary training and support to keep all employees affected efficient and productive in their use of City computer systems.

2.1.1 Central Network Services [O]

the City's central networks will provide shared file and printing services and the communications "highway" to transport information electronically throughout the City.

A. NETWORK OPERATING SYSTEM [NT Server v4.0/Microsoft]

This is the common network environment connecting all of the workstations, printers, and other network devices. This manages the workstation addressing protocols, remote communications to and from the network to external networks and workstations, and user access privileges to files and devices throughout the organization.

B. ELECTRONIC MESSAGING [Exchange Server v5.5/Microsoft

The ability to electronically send simple messages as well as entire documents to coworkers in the City is important to reduction of telephone traffic (which limits the public's access to City staff) and paper is a critical element of the City's MASTER PLAN. The City will provide electronic mail services to all appropriate City staff as part of its Organization-wide technology environment.

C. SOFTWARE LICENSE MANAGEMENT [MacAfee Enterprise/Network Associates]

It is the City's policy to prevent any software piracy or illegal or illegitimate use of software on any City-owned computer system. To this end, it is the role of the City's IS Manager to manage, monitor, and control the installation and use of all software on all computers—servers and workstations alike.

D. HELP DESK [MacAfee Enterprise/Network Associates]

Any users experiencing difficulty on any City-owned equipment will have a help desk telephone number to call and report the problem. ISD will log the call and route it to the appropriate support group—internal or external—and ensure that it is resolved or escalated as expeditiously as possible.

E. CONFIGURATION/HARDWARE INVENTORY CONTROL

[MacAfee Enterprise/Network Associates]

Computers are part of the Fixed Assets Inventory of the City. However, their complexity makes them a special case, much as vehicles and other complex equipment. As such, supplemental information is needed to record serial numbers, warranties, etc. in order to effectively manage and maintain them. ISD will maintain all of the necessary records for all computer equipment to facilitate their expeditious repair and to support the software (and licenses) installed on them.

2.1.1 Office Automation [O]

The workstation "desktop" environment will be maintained as uniformly as possible to facilitate support and job skill transferability when staff moves to different assignments throughout the City.

A. SCHEDULING/CALENDAR MANAGEMENT [Outlook 98/Microsoft]

Personal business schedules, appointments, and "to do" lists are managed electronically and can be collaborated with other staff on the network.

B. PERSONAL DATABASE [Access/Microsoft]

Data extracted from the "official" City database systems for interim or offline use may be put into ancillary databases and merged with independent data for departmental or job function use.

C. GRAPHICS/DESKTOP PUBLISHING [Publisher 98/Microsoft]

Provides for the intermingling of text and graphics in a formatted document. Used for the production of newsletter, flyers, etc.

D. ELECTRONIC MAIL [Outlook 98/Microsoft]

Electronic mail shall be used whenever possible in lieu of phone slips, interoffice memo, or other paper-based notes. Both Organization-wide and Departmental systems should use the email engine to move transactions within the City whenever possible.

E. PRESENTATION GRAPHICS [PowerPoint 97/Microsoft]

Any presentations made to the City Council or the public shall use PowerPoint and the City-approved design templates and logos.

G. USER-LEVEL QUERY/REPORT WRITER [Crystal Reports v6.0/Seagate]

Allows for simple and complex user queries against any and al system databases to produce interactive displays or hard copy reports. Catalogs command files and displays them in menu form for future use.

H. ELECTRONIC SPREADSHEETS [EXCEL 97/Microsoft]

Electronic spreadsheets are provided as a calculation tool. Some applications may provide extraction capabilities and data can be exported to EXCEL formation as required. Data extracted to EXCEL files is not part of the City's official Organization-wide database warehouse.

I. WORD PROCESSING [WORD 97/Microsoft]

All official City correspondence will conform to City templates and formats and will be produced with a common word processing system.

2.1.3 Internet [O]

The World Wide Web is an important resource for staff and citizens alike. The City will maintain an Internet presence and provide the necessary and appropriate access for its employees. Appropriate use policies will be reviewed at new employee orientation and each year as part of regular employee in-service training.

A. WEB SITE MANAGEMENT [Front Page 98/Microsoft]

The City will provide a main web page and map along with standards for departmental web pages that appear as sub-pages under the City's main page. Each department's web page(s) will be considered Departmental applications but will fall under the umbrella of the City's main page.

B. INTERNET E-MAIL [Outlook 98/Microsoft]

Local electronic mail will be merged with Internet email so that each position requiring any form of email communications shall have a single, unique email address assigned to the person assigned that position by the IS Manager. Such use shall be restricted to City business only.

C. INTERNET ACCESS [Netscape 4.0/Netscape or Internet Explorer 4.1/Microsoft]

Each department shall determine the number of positions required to have access to the Internet and make appropriate arrangements with the IS Manager for the gateway address assignment and navigational tools necessary. The IS Manager shall manage and monitor such usage and produce periodic reports as to connect time, sites visited, etc.

2.2 ADMINISTRATION

Communication with the public, the council, and staff within the various City departments is essential to the mission of the City Administration department. To that end, technology will be used to facilitate communication internally and externally and provide a tool for tracking and follow-up for requests, complaints, promises, or other commitments made by City staff.

A. SERVICE REQUEST/COMPLAINT TRACKING [O] [Future]

Allows for the logging of citizen or business complaints at any point in the City (Police, Public Works, City Hall, etc.) and the routing of the complaint to the appropriate service agency. Tracks the status of the complaint until its resolution and provides statistics for executive review.

B. PROJECT MANAGEMENT/TASK TRACKING [Future]

Provides for the assignment of tasks and/or projects to staff and monitoring and feedback of progress, status, resources consumption, costs and other relevant statistics through completion.

2.3 CITY CLERK

The role of technology in the City Clerk's department is to give fast, accurate service to the general public, the City Council, and City staff. Staff's vision is to enable electronic access of the City's legislative history, including minutes, resolutions, ordinances, contracts, and deeds, to interested parties.

A. DOCUMENT IMAGING [D] [Study FY99]

Optically scans pictures and documents and stores them into a computer file or database for editing, manipulation, or retrieval.

B. DOCUMENT MANAGEMENT [D] [Study FY00]

Provides for the integration of all city documents into an electronic database for indexing and easy retrieval. Integrates electronic documents with imaged documents and provides for efficient indexing and archiving.

2.4 CITY TREASURER

The management of the City's cash and investments requires accuracy, security, and accountability. The department of the City Treasurer will use technology combined with appropriate manual procedures to assist in the recording of all cash transactions, transmission of funds to and from various banks and other financial institutions, and as a tool to find the best investment options for City funds. Both physical and logical security measures will be taken to ensure that transactions are auditable, and secure and that alternate procedures are available if the technology is unavailable or fails.

A. CASH FLOW AND INVESTMENT [D] [Portfolio Mgmt Software/Simpro]

Provides the capability to track all cash deposits to maximize return on investment and still meet periodic cash requirements (e.g. payroll) as needed.

B. BOND MANAGEMENT [Payroll Services Bond Ordering System/Federal Govt]

Orders and tracks employee bonds.

2.5 PLANNING/BUILDING & SAFETY

The Planning/Building & Safety Department is committed to meet the needs of our community by maintaining accurate records and providing efficient service through the use of emerging technologies.

A. GEOBASE [D] [Study FY99]

Data base system that links tabular data from other subsystems such as Utility Billing, etc. to a geographical location. Uses street addresses, parcel id's and/or geographical coordinates to link them together.

B. GEOBASE MAPPING [D] [ArcView/ESRI]

Graphical representation of the GEOBASE and the various layers which link the other tabular data (Customers, Fixed Assests, Permits, Business Licenses etc.) to it.

C. PERMIT TRACKING [D] [Study FY99]

Provides for the application, review, and tracking of various building and use permits within the City. Interfaces with Cash Receipts and Finance systems and allows for appropriate code enforcement and/or interfaces with related systems and databases.

2.6 FINANCE

The Finance department will deploy technology in all appropriate areas to facilitate the management of financial information and reporting systems for the City. As an internal service department it will provide the tools and services to other City departments and to the employees to ensure timely and accurate information and processing of financial transactions in an auditable, expeditious, and secure manner.

2.6.1 Accounting

A. ACCOUNTS PAYABLE [D] [Inforum/Eden]

This system generates checks (expenditures) from POs (encumbrances) and/or vendor invoices and maintains vendor historical payment and purchase information. It should interface directly with the G/L and PO/Requisition subsystems.

B. BUDGET MANAGEMENT [D] [Inforum/Eden]

Provided for the monitoring at the department level of budgets in all funds. Permits budget inquiries and ad hoc reports to ensure that budget for individuals accounts are not exceeded.

C. BUDGET PREPARATION [D] [Inforum/Eden]

This is a series of programs designed to extract a working budget from the current COA (with factor adjustment by selected accounts) to build department worksheets for interactive budget manipulation. Supports multiple versions and interface to next and current G/L operational files.

D. BUSINESS LICENSE [D] [Planned FY99]

The Business License subsystem maintains information on ownership, location, business characteristics, fees, etc. for all business entities in the City. It should link to the Geobase and Mapping subsystems defined in the DESIRED section.

E. FIXED ASSETS [D] [Study FY99]

This series of programs tracks all physical assets, original purchase price, deprecation schedules, etc. as well as location and movement throughout City facilities.

F. GENERAL LEDGER [D] [Inforum/Eden]

These are the controlling programs for all accounting subsystems such as A/P, A/R, Payroll, etc. Supports multiple funds and produces Trial Balances and consolidated fund reports.

G. PURCHASE ORDER [D] [Inforum/Eden]

Electronically encumbers funds against appropriated budget and monitors against delivery, receipt, and payment to vendors. Interfaces to A/P subsystem.

H. REQUISITION CONTROL [D] [Inforum/Eden]

Requisitions (from various Departments) pre-encumber and POs (from Purchasing) encumber funds that will later be expended by A/P once the goods and invoices are received. Both are created on-line to the vendor files and G/L. Account balances to be displayed as entered so there is no overexpending.

I. PROJECT COST ACCOUNTING [D] [Inforum/Eden]

Provides the ability to track costs for specific projects across funds and across multiple fiscal years. Shows sources and uses of funds.

J. VENDOR/PRODUCT TRACKING [D] [Inforum/Eden]

Keeps track of products and vendors from whom historical purchases have been made. Maintain price history from each vendor/product and produces bid/quotation for us on demand.

K. UTILITY BILLING [D] [UB/PSI]

Utility Billing for water, trash, sewer, recycling, and any other provided public utilities.

L. CASH RECEIPTS [D] [Quadrant, Inforum/Quadrant, Eden]

This subsystem manages all of the incoming revenues including direct deposits, cash over the counter, and A/R receipts. Interfaces directly with other subsystems: G/L, Building Permits, Library fines, etc.

M. SALES TAX TRACKING [Outsourced/MRC]

Validates sales tax payments reported to the State against Business License amounts to ensure accurate Business License fees.

N. PROPERTY TAX MONITORING [Outsourced/HdL]

Validates ownership of businesses within city limits to be sure appropriate business license and sales tax reporting is correct.

2.6.2 Payroll

These applications are a specialized aspect of the City's financial management systems relating to production employee paychecks and all associated accounting and reporting.

A. EMPLOYEE IDENTIFICATION [D] [Inforum/Eden]

Allows for the collection and maintenance of all necessary demographic and position assignment information for the processing of Payroll checks and reports. Interfaces to the Personnel System.

B. FRINGE BENEFITS ACCOUNTING [D] [Inforum/Eden]

Tracks the costs associated with all of the fringe benefits and retirement programs offered by the college. It includes interface and output to various external agencies such as STRS, PERS and Social Security.

C. PAYROLL PROCESSING [D] [Inforum/Eden]

Provides for the processing of employee paychecks and all associated reports. Handles distribution of fringe benefits and tax deposits. Interfaces to Financial system and other Payroll and Personnel subsystems.

D. SALARY PROJECTION [D] [Inforum/Eden]

Simulates the budget impact of changes to the various salary and benefit tables. Used as both and budgeting and negotiation tool. Interfaces directly with the Personnel System.

E. EMPLOYEE TIME ACCOUNTING [D] [Future]

Data collection mechanism used to input the hours worked by employees for payroll processing. Interfaces from the Employee Demographics and Absence and Leave subsystems.

2.7 HUMAN RESOURCES

The role of technology in the Human Resources department is to facilitate the management of information on current, past, and future (prospective) employees. It must ensure the protection of confidentiality and provide reliable, accurate, timely, and secure access to appropriate HR staff. It must also assist with communications to external agencies as well as internal staff and departments.

A. ABSENCE AND LEAVE [D] [Inforum/Eden]

The Absence and Leave Subsystem provides for recording, maintaining, tracking, and reporting absence and leave time accrued and used by employees.

B. APPLICANT TRACKING [D] [QuattroPro/In-house]

Maintains a database of applicant demographics, skills inventory, test scores, etc. in accordance with Federal and State statutes.

C. EMPLOYEE MASTER FILE [D] [Inforum/Eden]

Maintains a secured database of employee information with controlled access to appropriate fields and functions relating to their employment at the City.

D. POSITION CONTROL [D] [Inforum/Eden]

This is a series of programs which allows the user to look at the Employee Master File from an Organization Chart perspective or at individual employees and their assignments to multiple job categories within the organization.

E. PAYROLL INTERFACE [D] [Inforum/Eden]

The automatic or semi-automatic process of updating the appropriate Payroll information when relevant Personnel data changes occur. Includes interfaces to internal or external Payroll Processing subsystem.

F. MANUAL WRITER [D] [ManageRight/CA CofC]

Tools to assist in the preparation of policy, employee, and other type of manuals and technical description documents.

G. LAW INDEX [D] [TwoTrees/LCF]

A CD-based database of legal statutes with search tools.

H. SKILLS ASSESSMENT [D] [Assessments/RD Craig]
[Assessment Testing/CCPS]

Testing instruments to assess the skill level of applicants and employees.

2.8 PUBLIC WORKS

The Public Works Department will actively participate in innovative projects and programs to develop and maintain a communication and technology network which ensures El Segundo residents high quality municipal services and facilities. Technology will be used where it can appropriately:

- Provide service and information to the community more efficiently and in a most timely manner;
- Monitor annual maintenance programs for City facilities used by the community;

- Provide for the timely update of information managed by the Department.

A. FUEL MANAGEMENT [D] [Gasboy/Gasboy]

Records fuel usage by vehicle and tracks mileage statistics. Usually uses an automatic input device as fuel is pumped.

B. VEHICLE MAINTENANCE [D] [Faster/CCG Systems]

Provides for the scheduling and tracking of maintenance and repair costs associated with all vehicles owned and/or operated by the city.

C. WORK ORDERS [D] [Archibus/Wise Engineering]

Tracks work order information including labor and material costs. Interfaces to Payroll, HR, and Purchasing systems.

D. OPERATIONS MONITORING [D] [SCADA]

Monitors flow and activity at lift stations, pumping plants, reservoirs, etc.

2.9 RECREATION & PARKS

Since service to the citizens/residents of El Segundo is the primary mission of the Recreation & Parks Department, technology will be used to facilitate the communications with City residents and among the Recreation & Parks staff in all its facilities. It will also be used as a tool to manage the money paid in fees and all finances of the department to ensure that both fee and tax income is used efficiently and effectively. Technology will also be used to validate that priority of services go to residents of the City and to keep track of the interests and concerns of the citizens.

A. EVENT REGISTRATION [Future]

Records and monitors citizen registration at City recreational programs and events and tracks fees, costs and other information related to the efficient and cost-effective operation of such events.

B. GOLF COURSE MANAGEMENT [Outsourced]

Tracks revenues and expenses related to the operation of the City-owned golf course.

2.10 POLICE

Technology shall be deployed in the City's Police Department as a tool to protect citizens and police officers, communicate both within and outside the Department, and to provide timely, accurate, and accessible records consistent with State and Federal records and reporting requirements.

A. RECORDS MANAGEMENT SYSTEM [Outsourced/W. Covina PD]

Tracks all incidents, citations, and other officer-involved events and maintains a database for reports and followup.

B. CRIMINAL HISTORY REPORTING [CHRS/LA County]

Tracks incidents, modus operandus, victims, perpetrators, and other information used by investigators and detectives in crime analysis.

C. COMPUTER AIDED DISPATCH (Shared with Fire) [Outsourced]

Coordinates the location of a reported incident and the closest available officer(s) for rapid deployment of field resources from a central point.

D. E911 (Shared with Fire) [Planned FY99]

Integrates Computer Aided Dispatch with the telephone system a nd RMS so that 911 calls can go directly to dispatching and create an incident for the RMS system.

E. MOBILE DATA COMPUTERS [Planned FY99]

A communications system that allows field units to communicate directly with CAD and RMS systems as well as DMV records and other external Police systems.

F. TRAINING MANAGEMENT SYSTEM [TMS]

Keeps track of officer training requirements and records.

G. FINGERPRINT SCANNING SYSTEM [Live Scan]

Scans fingerprint information and searches local, state and federal databases for a match.

H. VEHICLE TRACKING SYSTEM [Vehicle Tracking System/ISR]

Tracks the location of police vehicles in real-time to integrate with CAD and RMS systems.

I. CRIME SCENE INVESTIGATION [Dole Barcode]

Maintains a database of crime scene information for crime analysis and court and prosecution reporting.

G. EXTERNAL CRIME DATABASES [CJIS]
[GREAT]

Provides access to external county and state databases of criminal information for tracking wants and warrants, gang activity, drug trafficking and other illegal activities.

2.11 FIRE

The Fire Department shall use technology as a tool to assist in meeting the needs of the community in the most efficient and effective way possible.

A. HAZMAT [Fire Trak]

Records and tracks the location of all hazardous materials registered throughout the City.

B. RECORDS MANAGEMENT SYSTEM [Fire Trak]

Records and tracks all fires and related incidents for reporting and followup.

C. COMPUTER AIDED DISPATCH (Shared with PD) [Outsourced]

Coordinates the location of a reported incident and the closest available officer(s) for rapid deployment of field resources from a central point.

D. E911 (Shared with PD) [Planned FY99]

Integrates Computer Aided Dispatch with the telephone system a nd RMS so that 911 calls can go directly to dispatching and create an incident for the RMS system.

2.12 LIBRARY

The Library provides the El Segundo community access to its vast collections of books, periodicals, newspapers, videos, books-on-tape, map archives, and other available resources through an Online Public Access Catalog system. Other technologies for providing library users with information include dedicated CD ROM and public Internet workstations. Adults and children will have access to computer labs for educational programs, word processing, and to meet other personal computing needs. The library staff will have desktop workstations for: 1) Efficient access to the library collections for public assistance; 2) The purchasing, cataloging, and processing of materials; 3) Assisting library patrons in the circulation of library items; 4) Word processing and other library related tasks that can be performed more effectively on a computer workstation; 5) Using the Internet as a resource tool for work related activities; and 6) communicating via email with other City employees and other associates for City business purposes.

Because of recent legislation which will interconnect virtually every public library in the State, the Library has developed a comprehensive technology plan of their own in concert with this Plan which is incorporated herein by reference as Appendix A.

2.13 ECONOMIC DEVELOPMENT

The mission of the Economic Development Department is to create, maintain, and implement a business climate that fosters a strong economic community, as well as business retention and attraction, and through the use of appropriate technology, provide an effective level of communication to all elements of the community.

3.0 INFORMATIONAL DATABASES

The City shall implement new applications using databases that are relational, open-system design, ODBC compliant and which can be Web-enabled for (secured) access via a standard Web browser on a local City Intranet. Portions of data appropriate for public access will be available on the City's external Web page. Each department will be responsible for the content of web pages and databases associated with their departments, but will be centrally coordinated by the IS Manager.

3.1 GEOBASE *[Study FY99]*

3.2 FINANCIAL RECORDS *Informix/Eden*

3.3 PERSONNEL RECORDS *Informix/Eden*

3.4 PHYSICAL ASSETS *Informix/Eden*

4.0 ORGANIZATIONAL SUPPORT

The City should provide administrators and support staff the tools, facilities, and training necessary to effectively use the City's technology resources.

4.1 STAFFING

The City will staff an Information Systems division (ISD) under the Finance Director to provide the technical resources and support necessary to operate all of the above mentioned Application Systems relating to the City's information resources. Although line-level reporting is to the Finance Department, ISD will be a service function responsive to all departmental needs based on City-wide priorities as established by the City Manager and the Executive Technology Review Committee. In addition, ISD will be responsible for the training and effective use of all City technology computer hardware, software, and peripherals.

Each of the following job functions may not necessarily represent a full-time position or even an in-house function. ISD will, however, ensure that all of the following functional needs are appropriately met within the available City resources and that allocation of the limited technology resources is appropriate to City goals and objectives and the priorities set by the City Manager.

4.1.1 Information Services Management

Establishes and enforces departmental policies and procedures. Provides input and feedback on City policies affecting or affected by technology systems. Manages the division's budget and provides relevant budgetary information for all technology planning, acquisition, and support. Participates as a non-voting chair on standing and ad hoc committees charged with developing technology policies and strategies and making large-scale Organization-wide project decisions. Maintains the department as a support and customer service oriented entity and regularly monitors departmental effectiveness and user satisfaction.

4.1.2 Administrative Support

Provides clerical, administrative, and minor technical support for the department. Tracks and maintains contracts with external service and equipment vendors, provides for interdepartmental communications for technology issues, and logs and follows up on all problem reports and/or help desk issues.

4.1.3 Software Development and Maintenance

Provides maintenance programming support for City-developed Organization-wide applications and special project programming as directed by the department manager. By design, the City will only use applications that are developed and supported externally except for programming that can be done using generic ad hoc report writers, spreadsheets, or other 4GL tools available as part of City-wide desktop applications (e.g. Microsoft Access, EXCEL, Crystal Reports, etc.).

4.1.4 Applications Support

Provides technical support for application integration, policies and procedures that facilitate the best and most appropriate use of the application software deployed throughout the City. Each Department shall have a coordinator or liaison to interact with ISD technical resources and the vendor/provider of the applications or services to combine the best features of process and technology.

4.1.5 Data Base Administration

Maintains the security and integrity of all Organization-wide databases and provides training and support for ad hoc queries and reports as well as interfaces and data integration among various department applications and databases.

4.1.6 Network Support

Responsible for the continuing operation of the City's central networks and all workstations, printers, and devices connected to them. Acts as liaison between user and external support services for both hardware and software. Is responsible for following up on all outstanding Help Desk work orders to ensure their timely resolution. City will maintain one network technician for every 100 (or fraction thereof) networked workstations.

Because of the heavy deployment of technology in Public Safety (Police and Fire), there will be at least one full-time technician dedicated to networks and communications for Police and Fire. This position will report to the Administrative Captain, but be technically accountable to the Network Administrator in ISD.

4.1.7 Voice Systems

This position is responsible for all of the telephone company telephone lines, both voice and data as well as the internal switches, PBXs, keysystems, intercom, paging, cellular phones, and/or desktop instruments. This function is responsible for moves, adds, and changes, and any configuration of Centrex or City-owned switching equipment.

4.1.8 Help Desk

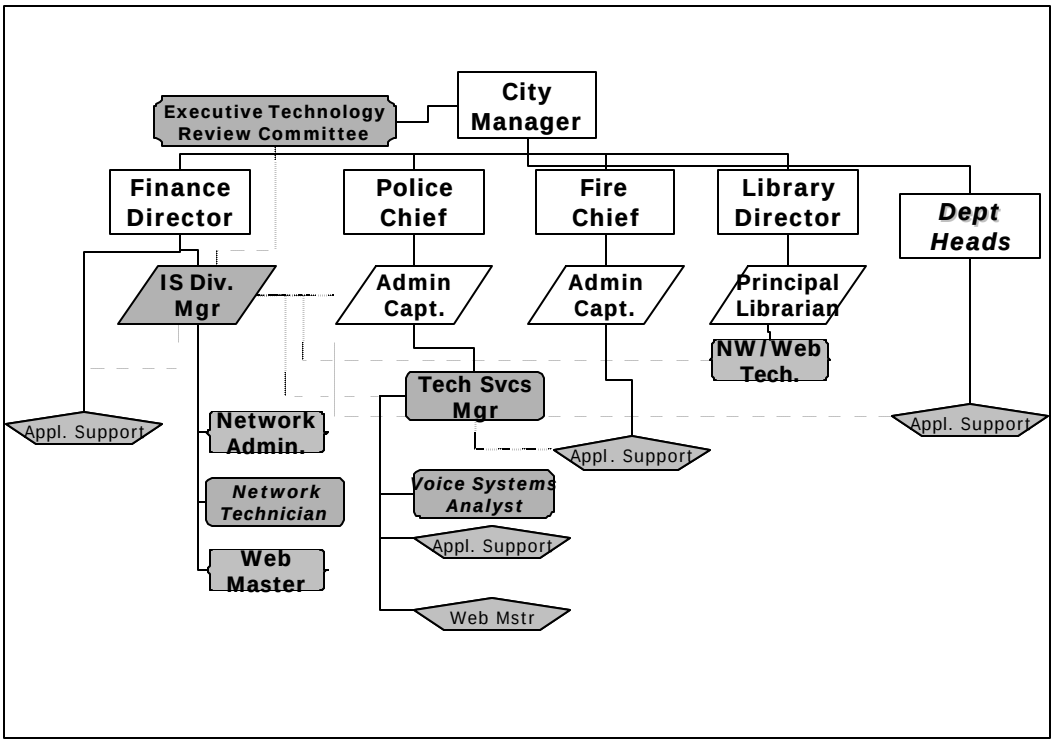
Primary first contact for telephone calls into the department. Assists whenever possible to resolve problems or directs call to appropriate staff. Logs all calls and follows up to ensure timely resolution. Also maintains departmental files, mail distribution, and general record keeping.

4.1.9 Webmaster

Responsible for format, security, and integrity of both Intranet and Internet City web pages.

4.1.10 Organization Chart

The organizational relationships of the various technology functions in the City and the "dotted line" associations across departments is exemplified below:



The above diagram displays some of the major technology user departments in the City as of this writing. Although the IS function is contained within Finance, its priorities and direction are established by policy and the ETRC (described later in Sections 5 and 6). All of the shaded objects represent technology-related functions. The bracketed objects ({ }) are those currently outsourced and all of the "Appl. Support" functions are partial assignments of existing job functions. Within Public Safety (Police and Fire), the Application Support functions report to the Technology Services Manager. The dotted-line relationships indicate coordination of technology functions by and through the IS Division who will assess and manage their performance on technology-related tasks. Technologists assigned to other departments will be managed in all other job performance areas by the appropriate departmental management.

4.2 FACILITIES AND EQUIPMENT

The City will provide the necessary facilities and equipment to support all of the Organization-wide applications and departmental applications (as funded by individual departments) in the following areas:

4.2.1 Cabling — Category 5 Copper/Multimode fiber

All job stations requiring access to computer systems, informational databases, or any Organization-wide applications shall be connected via the highest bandwidth, most cost

effective means available to centrally managed wiring closets located on each floor in each building.

4.2.2 Communications — Ethernet-TCP/IP

All facilities within the City shall be connected and networked using the most cost effective means available and have redundant backup circuits designed into the configuration. Protocols appropriate to the application requirements for all Organization-wide and departmental applications.

4.2.3 Central Systems — SCO *UNIX or NT Server*

The City shall support the necessary network backbone with all of the necessary servers to support the following functions:

A. ORGANIZATION-WIDE APPLICATION SERVERS

All Organization-wide applications will reside on central servers located in and managed by the IS Manager. Excess capacity can be used to support Departmental applications when appropriate for pro rata costs.

B. DATABASE SERVERS

Organization-wide applications requiring separate database servers will be located in and managed by the IS Manager which shall provide the necessary DataBase Administration (DBA) resources as may be required.

C. FILE SERVERS [Compaq Dual Pentium Rackmount Servers]

All network shared file and print services will be managed centrally by the IS Division.

D. COMMUNICATIONS SERVERS [Max4000/Ascend]

All communications into and out of the Organization-wide networks shall be managed centrally by the IS Manager which shall provide the necessary security and access controls to ensure the integrity of all City databases and systems. This includes Internet firewalls and proxy servers.

4.2.4 Desktop Workstations — Dell Pentium II/Windows 95

Desktop standards will be approved by the ETRC (see section 6) and all department computer workstations will conform to this standard. It is the City's policy to use brand name computers (i.e. Gartner Group Tier 1 manufacturers only) and purchase 3 year on-site warranties with Office 97 pre-installed. The specific configuration parameters and vendor preferences will be established in the Approved Technology List described in the next section.

4.2.5 Office Space

The City will provide ISD adequate office space for both in-house staff and outsource service suppliers to perform their job functions effectively. There will be storage and staging areas for receipt of equipment and analysis of problem equipment with adequate lighting, power, and security for efficient operation.

4.2.6 Training Room

The City will provide a permanent computer training area to enable training on all computer system technologies deployed throughout the City. This will include a computer lab with appropriately configured workstations for formal classroom training and display equipment such as video, large screen monitors, and screens. A library of training videos and CBT (Computer Based Training) and viewing equipment will be available for use and/or checkout.

4.3 FUNDING

As a strategic resource, all Organization-wide applications will be supported as part of the City's general support services budget. The overhead costs for supporting the network infrastructure will be computed by factoring in the training, maintenance and software license costs for network equipment, servers, and desktop computers with a labor formula of 1 FTE network technician for each 150 active network nodes or portion thereof and 1 FTE manager. Clerical and administrative assistance will be provided from the general Finance department pool.

As part of the annual budgeting process, departments will be assessed on an annual basis based on the pro-rata costs for the number of active network ports used by the department. Incremental costs for application file servers or other additional support costs will be applied as necessary. Capital Improvement Project requests for technology-related project will go through the ISD evaluation process described in subsequent sections. Irrespective of monetary considerations for any technology project, impact on existing IS resources will be a consideration in approving and prioritizing projects for implementation.

4.4 TRAINING

Training for use of all Organization-wide computer applications will be provided as part of regular staff development and not less than four hours per year per application (i.e. major system). New hires will be trained as part of employee orientation or required to demonstrate the requisite skills as a condition of employment. Funding for training will come from a staff development budget under the Human Resources department. All new technology projects will include adequate training funds, both for initial installation as well as on-going support.

4.5 APPLICATION SUPPORT

All Organization-wide applications will receive first tier support from ISD which shall act as liaison between users and any external vendor-contracted support resources. Departmental applications shall appoint a departmental technology or system coordinator who shall provide first tier support for application issues and coordinate software updates, patches, and other technical issues with ISD and act as liaison between departmental users and the application vendor/provider.

5.0 TECHNOLOGY ACQUISITION

There will always be more needs than technology resources available to serve those needs. Each request for additional or enhanced technology resources must be put in perspective to the vast array of needs throughout the City. This means each Technology Proposal for new or enhanced technology applications should be subject to technical analysis, identification of viable alternatives, and prioritization in the face of other requests.

5.1 TECHNICAL REVIEW

A credible technology expert should review each Proposal by to ensure its technical and functional viability. The claims of the marketing and sales people for the new technology products are often more promise than reality. A technical review and write up in layman's terminology will help those who must make priority decisions understand the practical and realistic implications of the proposed new system(s).

The approach for a technical review will answer the following questions with assistance from the IS Manager:

- What is the problem that will be solved—what is the expected outcome and benefit?
- What precipitated the need or caused the problem?
- What happens if we do nothing?
- What, if any, solutions have already been considered and/or ruled out?
- What are at least two alternative solutions to the problem/need?
- What other systems, databases, and/or departments might be impacted? How?

Any request that involves installing software on a City-owned computer, connection to any network device, or that uses information contained in the databases identified in Section 3 must go through a Technical Review process. The process will be divided into three levels of analysis based on the scope of the project and the impact it may have on other City technologies. ISD will determine into which level a request will fall and assist developing the request into a Proposal upon which action can be taken. Records will be kept on all requests to document relevant research and, at a minimum, answers to the above questions.

5.1.1 Level 1 Technology Request

Requests for computer systems, software, or peripherals that are in the Approved Technology List and which are funded from departmental budget, unfunded under $7500 within the department's discretionary budget or approved Capital Improvement Program

funds require only a review from the IS Manager and a completed New Technology Request form.

5.1.2 Level 2 Technology Request

Level 2 requests for computer systems, hardware, software, or peripherals meet the following criteria:

- Item(s) appear on the Obsolete Technology List, or;
- Initial cost is less than $10,000 and/or annual costs are less than $2000, or;
- No new appropriations are required, or;
- Requires additional ISD resources.

Approval may be granted jointly by City Manager, IS Manager and Department head with ETRC notification after-the-fact.

5.1.3 Level 3 Technology Request

In addition to meeting one or more Level 2 criteria, Level 3 requests for computer systems, hardware, software, or peripherals meet at least one of the following criteria:

- Analysis indicates impact on more than one Department or existing system(s), or;
- Requires additional appropriaton, or;
- Initial cost is more than $10,000 and/or annual costs exceed $2000.

5.2 EVALUATION CRITERIA

These criteria should be designed to develop a balanced application of City technology resources throughout all of departments in the City according to individual needs and overall benefit. Following are some examples of criteria that could be used:

A. COST JUSTIFICATION (Cost savings or revenue generation)

Each new project must be evaluated in the context of one or more alternatives to ensure that the most appropriate and cost-effective solution is chosen. All relevant costs must be considered including the “opportunity” costs associated with adding additional workload on other departments (e.g. ISD). Cost review will include the following:

- Initial purchase
- On-going maintenance/repair/support (external and internal)
- Initial training of staff include procedural integration or redesign

- On-going training for new employees
- Data loading/conversion from existing data sources
- Integration/interface with existing systems
- Obsolescence/replacement cost after the useful life of the system

Benefits must be measured in reasonably tangible form. Time savings resulting from increased productivity must be measured in either reduced salary expenses or job reassignment in other needy areas. Expense reduction should be a primary focus.

B. CITIZEN/COMMUNITY BENEFIT

Benefit to the community is represented by high visibility to citizens and reduction of paperwork, visits to City departments, faster response, etc. Direct benefit is that which they can directly experience. Indirect benefits are less visible in the form of improved efficiency, reduction of problems/errors, etc.

C. COMPATIBLE WITH OTHER CITY TECHNOLOGIES

The proposed technology should be compatible with existing technologies and/or consistent with the Technology Master Plan.

D. STAFF BENEFIT

Benefit to staff is measured by both the degree to which affected staff may benefit in the form of improved productivity or reduced error rates and the number of staff affected.

E. PUBLIC (COUNCIL) EXPECTATION

Expectations are usually reflected by what other cities and organizations are doing with respect to technology or the public's willingness to sacrifice other services to receive the benefits of the proposed system(s).

F. EXTERNAL (STATE/FEDERAL) MANDATE

Often external agencies encourage or require automated or electronic interfaces that require a technological solution in order to comply.

H. PROVEN TECHNOLOGY

The City does not have the resources, in most cases, to experiment with new technologies, even if it is "free."

I. RESOURCE REQUIREMENTS

Even if a project can be paid for entirely by the department, if it requires resources (computer or human) from the City, it may impact other operations or departments.

6.0 TECHNOLOGY DECISION MAKING

All City investments in computer and related technologies should be analyzed for technical integrity and equitably distributed to areas of need. Annual allocations to each department should be based on availability of funds and urgency of need. The acquisition process should be structured to **facilitate the consideration of** new applications of technology in appropriate areas, but evaluated against established standards and criteria so that it can be effectively implemented and supported over the long term.

6.1 COMMITTEES

The role of committees in the decision-making process is to ensure the equitable distribution of technology resources across all City departments. The meeting schedules are determined by the committee themselves, but shall be at least quarterly.

6.1.1 EXECUTIVE TECHNOLOGY REVIEW COMMITTEE (ETRC)

For high level technology policies and annual distribution of technology resources City-wide, there will be a representative standing committee referred to as the Executive Technology Review Committee (ETRC) that performs the following functions at least once each year:

- Reviews the Technology Master Plan to see if it is still relevant to current technical, fiscal, and political realities.
- Reviews Level 3 Technology Proposals for purchase of computer hardware/software systems;
- Reviews the Evaluation Criteria for Technology Projects
- Reviews the Approved/Obsolete Technology Lists.
- Recommends the level of allocation of technology resources throughout the City for departmental applications through budget and organizational (staffing) policies.
- Reviews problems and complaints and periodically conducts a City-wide Satisfaction/Needs Assessment survey.

Committee membership shall include all department heads or their designees, the City Manager, and the IS Manager as a non-voting chair. Other meetings of the ETRC (at least quarterly) will consider project prioritization, creation of Task Force committees, or other policy and procedure issues that the IS Manager may require. The ISD will be responsible to take minutes and distribute them to Committee members after each regular meeting.

The ETRC will take recommendations to the City Manager/City Council based on the evaluative process outlined herein. It is the Council's prerogative to override an ETRC project denial and provide funding for a specific Technology Request, but it is the ETRC's role to establish the prioritization of the projects for ISD.

6.1.2 Task Forces

Whenever technology projects or issues involve multiple departments, the IS Manager may create an ad hoc Task Force to assist in the gathering of collective information about the needs in all affected departments. Again, the IS Manager is the non-voting chair and facilitator of the committee and will work with departmental representatives (appointed by the department heads at the IS Manager's request) to thoroughly define the collective needs for the project at hand. Current Task Forces are:

Internet Task Force

This group is charged with the responsibility to help with the design of the City's departmental web pages, determine what information will be made available, and how it will be maintained.

GIS Task Force

This group is charged to define the requirements of a geographic information system database to which various informational elements from other City databases are linked.

Imaging Task Force

This group is charged with determining document management standards and when, where, and how documents are stored electronically and accessed both internally and by the public.

6.1.3 Technology Advisory Group (TAG)

The primary role of ISD is to provide and support the infrastructure on which all of the various departmental applications operate. This also includes the integration of systems and databases where necessary and making sure that the integrity of all city data in the informational databases is maintained. Each department must have a designated Technology Liaison or Coordinator who is responsible for the application software used by the department and who is the primary interface between the vendor/manufacturer of the software and the City. A special committee of departmental liaisons will meet with the IS Manager each month to review operational issues such as system performance, security, upcoming changes in applications announced by the software providers, and other issues affecting the computing environment anywhere in the City. This committee will be call the Technology Advisory Group (TAG) and shall be chaired by the IS Manager. Monthly meeting attendance is mandatory from each department and each participant is responsible for reporting back to the department the outcome of each meeting.

6.1.4 Capital Improvement Project Advisory Committee (CIPAC)

Each year and ad hoc committee is formed to review requests for the allocation of the City's capital budget. Technology projects can be, and very often are, part of the capital outlay expenditures of the City. Once reviewed and processed through the ETRC as described above, CIPAC will review and prioritize Technology Proposals as part of the regular budgeting process.

6.2 CITY TECHNOLOGY STANDARDS

The City will establish standards for technology that can be supported by it which will be employed by staff throughout all sites and departments. These standards are set by the ETRC, and assume institutional support and training and tacit approval for acquisition.

There are cases in which adherence to standards may not yield the best solution. In these isolated cases, a non-standard solution may be approved through the normal Technology Proposal process and either authorized or denied by the City Manager. However, individuals may opt not to follow supported standards after recommendation by the advisors and ETRC. These individuals are, therefore, responsible for their non-standard choices.

The vehicle for establishing these standards shall be the following lists, revised and published each year by the ETRC as part of its annual planning agenda.

6.2.1 APPROVED TECHNOLOGY LIST

This is a list of computers, peripherals, other devices and wiring schemes for which the City has contracts and internal resources for maintenance and repair and which are compatible with the established computing environments at the sites and departments. Any staff or department purchase request for any device on this list will be subject to a Technical Review (to ensure appropriateness for its intended use and inclusion of full cost for wiring, maintenance, training, etc.), but will not require prior Committee approval at any level.

6.4.2 OBSOLETE TECHNOLOGY LIST

This list is developed in order to phase out products determined to be inappropriate for continued use. However, as long as the products, devices, or wiring schemes continue to provide productive use, the institution will continue to support them. New acquisitions of products, devices, or wiring schemes on this list will require a Technical Review and prior Committee approval (i.e., they must be clearly demonstrated that a special need exists).

6.3 TECHNOLOGY PROPOSALS

The City has established a process whereby technology needs can be addressed on an on-going basis at any level of the organization. It is not possible for any one person or department to keep pace with changing technologies that may affect any or all areas of city operations. Therefore, the City must have a straightforward procedure to allow suggestions or 'Technology Requests' to be appropriately reviewed and become ‘Technology Proposals’ to be either approved or denied based on its alignment with City goals.

6.3.1 PROPOSAL FORMAT

The primary element of any technology proposal must be the expected functional outcome of the project. It should take the form of a list of features and functions against which the delivered products and services can be measured and should be the basis for acceptance and payment. This list of features and functions should be the specifications for the procurement or development process and included in purchase orders, Requests for Proposal/Bids/Quotes, or other documents presented to prospective vendors or suppliers.

Following the functional requirements of the project, a comprehensive and competitive analysis of various alternative solutions should include a quantitative analysis of the following:

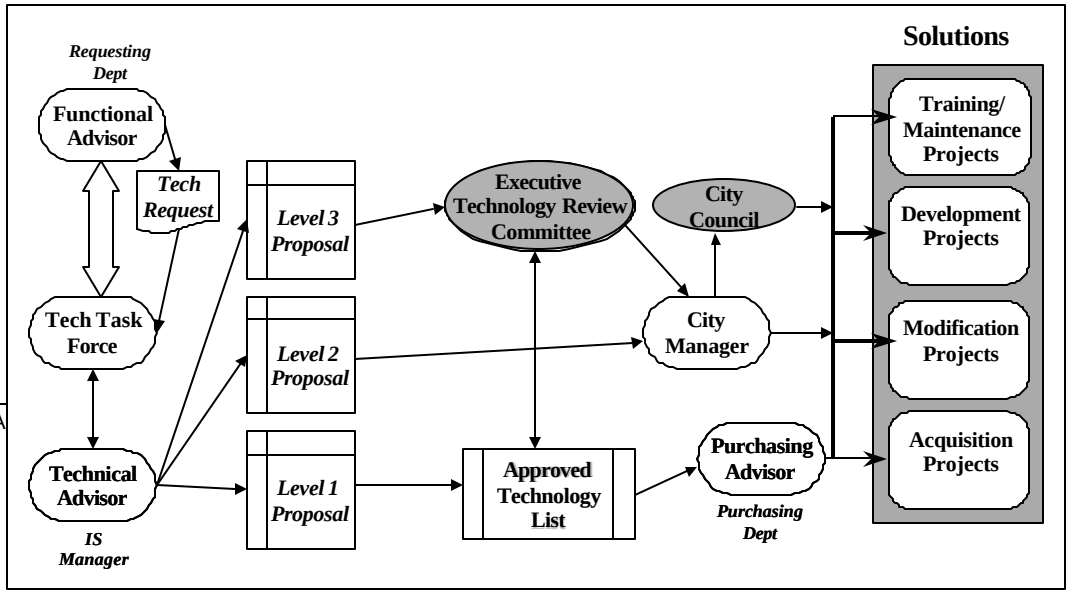
- Degree of compliance with the technical specifications;
- Initial cost of products and services;
- All costs for preparation, configuration, setup, pre-installation planning, etc.;
- Costs for technical and end-user training, both initially and on-going;
- Costs for data conversion and interfaces and/or integration with existing databases;
- Warranty terms and provisions, as well as costs for on-going maintenance and support.

Before any purchase is made, the City must be assured of the competence and reliability of the vendor or service provider. For all major technology purchases, the suppliers must meet the following qualifications:

- It must be a financially stable business with a consistent record of profitability;
- The products/services must be strategic and a major part of their business plan;
- Support resources must be readily available;
- There must be credible references that can attest to their ability to deliver the proposed products/services to the City.

6.3.2 REVIEW PROCESS

The diagram below shows the process for the three levels of Technology Proposals (as determined by ISD analysis):



A Level 1 Proposal can be processed through normal City purchasing procedures. If ISD resources are required for implementation or support, delivery and implementation must be coordinated and approved by the IS Manager. A Level 2 Proposal may be approved by the City Manager and the ETRC will be advised at its next regularly scheduled meeting. A Level 3 Proposal requires ETRC review and recommendation before City Manager approval and prioritization. Conversion of a Technology Request into a Technology Proposal and assignment of Level 1, 2 or 3 will be done by the IS Manager according to the criteria outlined in Section 5.1 TECHNICAL REVIEW.

6.4 TECHNOLOGY PROJECTS

The implications of approval for each Technology Proposal are cumulative. In addition, residual problems and changes with existing operational technology applications require City and/or departmental resources. Monitoring the resource commitments of ISD staff and equipment and communicating the implications of changes is the responsibility of the IS Manager. The ultimate decision as to how to re-prioritize projects based on changing circumstances (new Technology Proposals, unforeseen problems, external mandates, etc.) rests with the City Manager. However, the IS Manager, in concert with the requesting department, must present the project resource requirements for all existing and new Technology Projects to the ETRC in a concise and digestible form so that everyone understands the implications of the decisions they must make. The ETRC will apply the criteria to the Proposal to rank it in the context of other outstanding Technology Proposals.

6.4.1 TYPES OF PROJECTS

A. TRAINING/MAINTENANCE PROJECTS

With appropriate analysis, many of the Proposals can be addressed by better use of existing technology rather than buying new technologies. There is a wealth of technology resources throughout the City, which, through re-training or maintenance, can solve many of the problems that will arise in the future. Part of the Technical Review process (which is a Project in itself for ISD staff) is to try to find solutions within existing technology resources.

B. MODIFICATION PROJECTS

Sometimes, particularly with computer software, it is possible to modify existing applications to solve changing needs rather than bring in totally new or replacement technologies. Such Maintenance Projects are often deceptively complex and require more time and effort than might be expected from non-technicians. Sometimes, fixing one part breaks something else and explodes the scope of the Project beyond original estimates. When this occurs, the CIO must advise the DTAC and let them re-asses priorities.

Each Modification Project should go through the following steps and resource and time estimates given for the tasks necessary within each:

- DESIGN. The technical specifications for the project should be carefully defined so that the software technicians know exactly what the outcome should look like.

- REVIEW. The person or department requesting the modification should review and sign off the DESIGN document.

- CODING. The actual program modifications are usually only a small part of the process.

- TESTING. Someone other than the software technician(s) doing the coding should be asked to test and approve the modifications against the DESIGN document.

- DOCUMENTATION. The final Systems Documentation (technical) and User Documentation (procedural) and Operational Documentation should be completed before any attempt to implement the change is made.

- TRAINING. This step involves teaching people who will be using the system all of the procedural and operational aspects of the modifications.

- IMPLEMENTATION. This step involves data conversion (if necessary) and integration of the new system into the procedural routine of its users.

C. ACQUISITION PROJECTS

In cases where neither A or B above applies, it may be necessary to buy the technology from external sources. While this sounds simple, it involves a carefully defined process of technical specification, analysis and evaluation of alternative products (usually through a competitive bidding process), and negotiation of contracts and final configuration. Once the purchase is made, there is significant coordination of training, delivery, site preparation and other activities which elongates the duration of the Project to several months, even on small procurements.

The rigor of the definition of the functional requirements should be no less for Acquisition Projects than for Development/Modification Projects. It is crucial that clear and precise functional objectives and expectations be made clear to vendors so that there is a way to assess the effectiveness of the product once it is delivered but before it is paid for. At a minimum, the following steps are required:

- SPECIFICATIONS. These should be carefully and specifically documented in functional (not technical) terms so that vendors are clear as to the intended use of the system.

- SOLICITATION. Whether it is a formal competitive bid (>$10,000), an informal bid (<$10,000), or a request for quotes (<$7,500), involvement of as many different vendors and products as possible, not just one specific product, is encouraged. The "sole source" concept is usually not applicable in today's technology environments.

- EVALUATION. Be sure to involve the potential users in the evaluation, check references thoroughly, and objectively evaluate the proposals against the functional specifications defined in the first step above.

- NEGOTIATE AND AWARD. The contract, license, or agreement is a significant part of the process and should not be signed without careful scrutiny.

- INSTALL/TEST. Define a specific Acceptance plan so that the system is tested against the specifications before it is accepted. Data conversion should be done as part of this test, since this is often a problem with new systems.

- TRAIN. Train the users and make whatever changes to procedures and documentation necessary to integrate the system into the regular routine.

- IMPLEMENT. This should put the new system into operation.

D. DEVELOPMENT PROJECTS

Although it is expressly defined as the least desirable technique, there are circumstances when it will be necessary to develop the technology (usually writing software) in-house. In these situations, the Project must involve design, documentation, testing, training, and implementation and requires significant technical resources and time. It is the responsibility of the IS Manager to ensure that all phases of the Project are satisfactorily completed and that the ETRC is apprised of the progress of the Project.

Each Development Project should go through the following steps and resource and time estimates given for the tasks necessary within each:

- DESIGN. The technical specifications for the project should be carefully defined so that the software technicians know exactly what the outcome should look like.

- REVIEW. The person or department requesting the modification should review and sign off the DESIGN document.

- CODING. The actual programs are usually only a small part of the process.

- TESTING. Someone other than the software technician(s) doing the coding should be asked to test and approve the new system against the DESIGN document.

- DOCUMENTATION. The final Systems Documentation (technical) and User Documentation (procedural) and Operational Documentation should be completed before any attempt to implement the system is made.

- TRAINING. This step involves teaching people who will be using the system all of the procedural and operational aspects of the new system.

- IMPLEMENTATION. This step involves data conversion (if necessary) and integration of the new system into the procedural routine of its users.

7.0 POLICIES AND PROCEDURES

With the sizeable investment in technology, there must be policies and procedures that will ensure its appropriate use, prevent unauthorized access or abuse, and provide for the safety and security of the information maintained in corporate databases. To this end, the ETRC shall be responsible for the periodic review of technology related policies published in its Administrative Regulations.

7.1 Appropriate Use Policies

Employees granted access to equipment and software owned and/or licensed by the City will be instructed regarding these provisions upon initial hiring and then reviewed at least annually through corporate in-service training dedicated to both departmental and Organization-wide technology systems. Once so instructed, failure to abide by these policies and procedures will result in disciplinary action.

7.1.1 Electronic Mail

Electronic mail is an essential tool for communication both within and without the City. All appropriate staff positions will be given email accounts for communicating City business internally and over the Internet. The computer hardware and software tools will be managed and supported by ISD and standardized throughout the City. All messages, documents, and other information transmitted through the City's email system are the property of the City and subject to review by appropriate authorities. Messages designated as confidential between City employees shall remain confidential and secure unless required to be reviewed by legal order or the City Manager.

Electronic mail may also be used as a messaging service to transmit certain transactions for various application systems. To this end, the acquisition of systems requiring such messaging services must be compatible with the City's email system.

7.1.2 Software piracy/Personal software or hardware

All software installed on any City computer must be registered through the IS Manager which shall maintain a log of all such installations and validate appropriate licensing. CD's and instruction manuals as well as registration certificates may be kept by the department except for software designated as Organization-wide. ISD will, from time to time, audit installed software throughout the City and Department heads are responsible to ensure that illegal copies of software are not proliferated in their departments.

7.1.3 Passwords

Each employee must use their own personal logon ID and password when using any City network workstation. Passwords must not be shared, and if workstations are shared, one user must logout before another user can begin using the computer. Although passwords are created and maintained by each user, the IS Manager will retain administrative rights to every computer workstation and network device.

7.1.4 Access to remote resources (e.g. Internet)

Department heads shall designate which specific positions require email accounts and access to external networks such as the Internet. ISD will provide appropriate permissions to specific network accounts as directed by the Department heads and document all such requests and changes. Each department will appoint a webmaster to edit and maintain the content of the department web page(s) and who will coordinate both design and content issues with the IS webmaster.

7.2 Security and Controlled Access

Each individual is responsible to ensure that information contained in the City corporate databases is protected against unauthorized access, yet available to appropriate use and review.

7.2.1 Passwords and Login IDs

The City's Personnel Action form will include an area to designate if a new (or re-positioned) employee should have a network logon ID, Internet Access, email account, and to which groups he/she will belong. The network account groups will be defined as follows:

- City-wide [CITY]
- Departments [ADMIN; ECON DEV; CITY CLERK; HR; PUBLIC WORKS; PLANNING; BLDG & SAFETY; TREASURER; FINANCE; ATTORNEY; POLICE; FIRE; LIBRARY; REC/PARKS]
    - Permanent full-time & part-time employees [FULL-TIME; PART-TIME]
    - Temporary & part-time employees [TEMP EMPL]
    - Sub-department groups
- Bargaining unit groups
- Department Heads [DEPT HEADS]
- City Council [COUNCIL]
- Commissions [PLANNING; ??]

7.2.2 Sensitive and Confidential Information

The network file system is set up to allow for personal network directories, called 'Home' directories on which all working documents for employees should be stored. Local 'C' drives should not be used for any permanent storage, as only the network drives are backed up to tape. There are department directories which are restricted to access by members of the department groups only. There is a Projects directory which accommodates project directories with specific access granted to individuals participating in the project activities.

Finally, there is the Share directory for interim storage for files to be shared among any and all departments in the City.

7.2.3 Passwords

For every server, router, or intelligent network device for which there is a password for administrative access, a sealed envelope will be retained each by Human Resources and the IS Manager containing a list of each device, its location, and its password(s). In the event there is an emergency that requires opening one of the envelopes, as soon as possible thereafter, the IS Manager will reassign passwords on all devices whose passwords were exposed and create a new list to be sealed in envelopes.

7.3 Emergency Preparedness and Disaster Recovery

It is never possible to predict the time or the nature of disasters or catastrophes that may disrupt the normal operation of the City and corrupt or destroy critical computer systems and the information contained within them. It is the responsibility of the Technology Services Department to plan for and test disaster recovery measures that will protect such information from destruction and provide for the timely recovery of critical system into temporary or permanent operational status.

7.3.1 System Backup

ISD will be responsible for regular backups of all files stored on central file servers, application servers, and database servers. Incremental backups of all changes files will be done daily, a full data backup will be done weekly, and a full system backup done once each month saving all registry and configuration information for a full system restore if needed. The media will be rotated on a four to five week cycle so that restoration can be made from the last monthly backup. Backed up media will be stored off-site after each weekly and monthly backup.

ISD will test random selected file restoration at least monthly as part of the full system backup process. Files stored on local workstations will not be backed up by ISD and will be the responsibility of the users assigned to the workstations to either move critical files to a file server directory or make other arrangements for backup.

Departmental servers not part of the City's central server farm are the responsibility of the department to provide backup. Departmental backups must follow the same sequence and strategy as the central server backups.

7.3.2 Physical Security

All computer and network equipment in use in the City will be secured from damage of loss due to earthquake, fire, power failure, water, and theft or vandalism.

7.3.2.1 Earthquake Security

All central servers and network equipment will be mounted in racks and/or frames secured to the floor and a supporting wall. Remote network equipment will be mounted in secured racks or bolted to the floor or supporting wall.

Desktop workstations will be placed on appropriate desk areas away from the edges of the desk area. Tower units will be placed on the floor adjacent to the desk, resting against one side of the desk.

Printers and other peripheral equipment must also be placed securely on desk areas or on stands designed to support such equipment. When possible, it should be placed near a supporting wall.

7.3.2.2 Fire Security

The main computer room(s) in all buildings where central servers and equipment are operating will be equipped with appropriate fire alarms and halogen fire extinguishing equipment which can be either manually or automatically deployed.

7.3.2.3 Water Security

All central servers and equipment shall be placed in rooms above the basement level and with ceiling and roof protection designed to divert water that may intrude as a result of rain, floods, and/or leaks in the roof or plumbing in and around the computer room(s).

7.3.2.4 Power protection

All central servers and equipment will be place on uninterruptible power sources sufficient to continue operation for up to 15 minutes in the event of a power loss or failure. Where possible, a sustained power loss of over 5 minutes will initiate an orderly shutdown of the equipment in order to prevent data loss or corruption.

7.3.2.5 Intrusion alarm

All central computer rooms will be secured with alarmed entry. Passcodes for entry will be managed and maintained by the IS Manager in the same manner are passwords for servers and network equipment.

7.3.3 Hot site

Arrangements shall be made with another City or business in the area to use as a hot site in the event that a disaster destroys any of the City's critical computer systems. The site must have compatible hardware and software and provisions must be made to use the system for critical operations until the City's computing environment is restored and arrangements for emergency access provided contractually either through reciprocation or for a fee. There must be an annual exercise to test the transfer of operations to ensure that it works and to document the process for both the City and the hot site.

In some cases, there may be different hot sites for different systems. Departments are responsible for arranging hot sites for departmental servers and applications.

7.3.4 Year 2000 Readiness

The advent of the year 2000 brings the possibility of problems with many hardware and software systems. A list of potential problems areas include:

- Computer file/application/database servers
- Desktop computers
- Laptop computers
- Network equipment – hubs, routers, switches
- FAX machines
- PBX and telephone keysystems
- Copier equipment
- Computer software of any type
- Meters
- Thermostats

The City will appoint a Task Force to research the potential problem areas and determine the scope of the potential problem. The focus of the Y2K Task Force shall be to:

- Inventory all of the items in each of the above categories
- Get a written statement of Y2K compliance from the manufacturer
- Where possible, test the unit for transition to and operation in the year 2000.
- Develop a contingency plan for operation for all units that cannot be tested or for which the manufacturer cannot validate Y2K compliance.
- Identify all of the units that must be replaced before December 1999.