Information Technology Strategic Plan Fiscal Years 2002-2006

THE CITY OF SAN DIEGO
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CALIFORNIA

August 9, 2001 Update

Information Technology Strategic Plan FY 2002-2006

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Preface

The revolution in information technologies over the past three decades has radically transformed the ways in which we produce, consume, manage, cooperate, communicate and learn. Indeed, this transformation is so profound that some scholars argue we have entered an "Information Age" where the most prized assets are knowledge-based.

In recent years, public sector managers have become increasingly dependent on information technology (IT) to do their jobs well. At the same time, many managers have neither the desire nor the need to understand the seemingly inscrutable functioning of the high-tech equipment that makes up an IT system. Yet these managers' jobs often require that they make decisions regarding that technology or oversee the decisions of others who work with it. In the past, the men and women who made most high-level decisions about IT in the public sector were technologists themselves. Those days have passed.

Much has changed in the City as well. In 1979, when San Diego Data Processing Corporation (SDDPC) was created to provide services to the City, the "data processing" environment consisted primarily of applications running on centralized mainframe computer systems. There were fewer than 100 IT employees and SDDPC's annual operating budget was less than $4 million. Today, there are more than 550 employees at the City and SDDPC supporting technology and total annual expenditures are approximately $90 million. This expenditure supports the development and operational maintenance of the City's technology infrastructure, including 7,800 desktop computers, 9,500 network connections and 10,500 telephone/fax lines. The City currently has approximately 160 IT projects.

Despite the overwhelming importance of IT in the City, there has been no Citywide IT Strategic Plan to guide and direct its use. With that in mind, we offer this consensus-driven, IT Strategic Plan, which attempts to provide a basic guide for the use of technology as a strategic tool for enabling effective delivery of government services.

This Plan has three essential goals:

- To provide the City with a broad overview of the use of technology in the City now;
- To define the City's vision of the future for IT and key strategies for achieving this vision; and
- To provide Citywide guidance and direction for the management and development of IT within the City over the next three to five years.

The vast majority of the information in this plan comes from the IT Governance Committee (ITGC). Over the last year, the ITGC thoroughly discussed IT practices, the technology used and the service delivery model in the City. The ITGC relied on research done by the GartnerGroup, Inc., an industry-leading, IT research and advisory company that was hired to assist the City in the development of this Plan. After establishing the strategic framework for IT governance and service delivery, the City and SDDPC worked as strategic partners to incorporate key elements into the plan on the delivery of IT services needed to achieve the

City's goals. This plan presents the consensus-driven recommendations for Council's acceptance.

Acknowledgments

The most important people to acknowledge are the men and women of the IT Governance Committee who gave many months of their time meeting to discuss departmental business needs and come to consensus on the technology strategies and the service delivery model needed to meet those needs. These people are listed in Appendix D.

Of course, thanks are due to the City Manager's Executive Team, the Auditor-Comptroller, Personnel Director, and SDDPC Management without whose sponsorship and support the IT Strategic Plan would not have been possible.

Others who should be noted for their aid and input in completing survey instruments and attending focus group meetings include the Science & Technology Commission, several of the Mayor and Council's staff, department information system analysts, IT&C staff, and SDDPC management and staff. In total over 350 men and women participated in 30 focus groups and 10 strategy workshops. The Citizens Survey also captured input from 1,600 residents.

Many thanks go to Dianah Neff, who provided vision and leadership as the City's CIO during the planning process. Howard Stapleton, as the initial IT Strategic Plan Project Manager, coordinated the focus groups, developed the Citizen Survey instrument and assisted in writing the original document. Alan Watkins, the current IT Strategic Plan Project Manager, coordinated and wrote the revisions to the document. Don Lovell, SDDPC's Chief Operating Officer, and Chris Curtis, SDDPC's Strategic Planning Manager, provided extensive support in revising the document. Thanks also go to Bonnie Pearson for arranging the meetings held over the last year as the plan was developed.

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1. EXECUTIVE SUMMARY

BACKGROUND

The City of San Diego is the seventh largest city in the nation with an approximate population of 1.3 million residents in a 342.4 square mile area. The City has experienced significant growth, especially in the science and technology areas, and has gained the preeminent position of being known as "*Technology's Perfect Climate*" and in downtown San Diego as "*Bandwidth Bay*." This growth has resulted in opportunities for economic prosperity and a high quality of life for its citizens. The City government is a large, complex organization that serves a growing, dynamic and diverse set of customers. These customers include the citizens, the business community, departments, and programs. There are approximately 10,600 City employees, organized into 24 departments. The City's proposed annual operating budget for Fiscal Year 2002 is almost $1.7 billion, including $728 million for General Fund expenditures, $657 million for Enterprise Fund operations and $282 million for Special Revenue Fund expenditures.

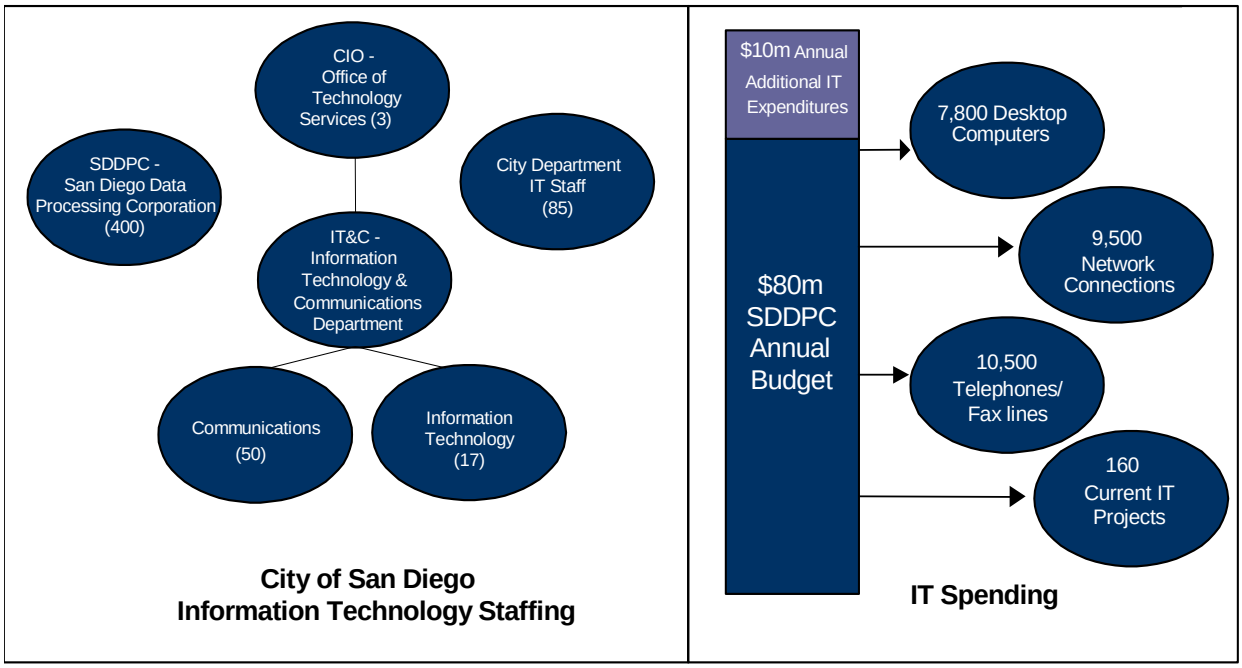


Figure 1. City of San Diego IT Staffing and IT Spending Budget

Within the City of San Diego, the San Diego Data Processing Corporation (SDDPC) provides primary service delivery for information technology. SDDPC was formed in 1979 as an independent City-owned non-profit corporation to address the inability of the City to: 1) recruit and retain adequate data processing staff and 2) quickly procure information technology products and services. The staff retention problem was caused by the difficulty of maintaining competitive salary levels for technical positions within the City's Civil Service system, while the procurement of information technology (IT) products and services was limited by the City's purchasing policies. The City's primary function as sole member (owner) of SDDPC was to appoint the Board of Directors. The City's operating relationship with SDDPC was defined by an Operating Agreement, which established the Corporation as the exclusive provider of IT services to the City.

Much has changed since SDDPC was formed. In 1979, "data processing" consisted primarily of applications running on centralized mainframe computer systems and SDDPC's annual operating budget was approximately $4 million. SDDPC currently employs approximately 400 full-time staff and has an annual budget of approximately $80 million, which is primarily funded through the City's IT projects and service delivery needs. Although the City amended its Operating Agreement with SDDPC in 1994 to allow the City to purchase IT products and services from other entities, the vast majority of IT services continue to be delivered through SDDPC.

In addition to SDDPC, the City has a combined total of about 155 information technology and communications staff. Sixty-seven positions are centralized within the Information Technology and Communications Department (50 in Communications and 17 in IT), and 85 are decentralized within City departments. IT&C reports to the Office of Technology Services, which has a total staff of three, headed by the CIO. The City estimates that an additional $5 to $10 million is spent on information and communications technology outside of SDDPC, for a total annual expenditure of approximately $90 million. This expenditure supports the development and operational maintenance of the City's technology infrastructure, including 7,800 desktop computers, 9,500 network connections and 10,500 telephone/fax lines. The City currently has approximately 160 IT projects in progress.

In 1998, the City Council's Rules, Finance and Intergovernmental Relations Committee (Rules Committee) directed the Select Committee on Government Efficiency and Fiscal Reform to review the City's and SDDPC's IT business strategies. The Select Committee's nine-month review concluded that: 1) the City needs a cohesive long-term information technology vision, and 2) the City must take full responsibility and control over its IT functions. These conclusions were based on a key finding by the Select Committee that "…in the absence of a clear vision and strong leadership on the part of the City, SDDPC has, within its own organizational imperative, assumed direction and control of the City's information technology services." In response to the Select Committee's findings and conclusions, the Rules Committee approved the following recommendations in January 1999:

- Appointment of the City's first Chief Information Officer (CIO) at the Deputy City Manager level
- Development of the City's Information Technology Strategic Plan
- As part of the strategic planning process, examination of SDDPC's relationship and future role(s), including the feasibility of outsourcing alternatives.

In January 2000, the City Manager appointed the City's first CIO. Under the CIO's direction, the development of a comprehensive IT Strategic Plan for the City was undertaken.

The City's IT strategic planning process was an inclusive, business-driven, consensus-based process guided by the City's Information Technology Executive Team and Information Technology Governance Committee (ITGC). The City also engaged the GartnerGroup, Inc., an independent research and management consulting firm, to assist in the strategic assessment and strategy formulation process. Input from key stakeholders was solicited through over 30 focus group sessions. In addition, a telephone survey of citizens (See Appendix B.) was conducted to obtain input on desired electronic services as well as overall Internet access capabilities. After the City established a strategic framework for IT governance and service

delivery, the City and SDDPC agreed that implementing a strategic partnership in the delivery of IT services would provide the greatest benefit to the City. Joint discussions between the City and SDDPC helped to further clarify roles and responsibilities of each entity. The City and SDDPC will continue to work together to ensure that the IT organizations are complementary and overlapping functions are minimized.

The Information Technology Strategic Plan (ITSP) is intended to define the City's vision of the future for information technology and key strategies for achieving this vision. It will provide Citywide guidance and direction for the management and development of IT within the City of San Diego over the next three to five years.

IT VISION FOR THE FUTURE

The City recognizes the power of information technology to serve as an enabler to achieve its business goals and meet its challenges, including the Mayor's vision for a "*City worthy of our affection."* For example, it will help provide the infrastructure to support the Mayor's vision for a "*City of Villages*." It will facilitate the transformation of the City's service delivery model by providing citizens with electronic ways to conduct business with the City. It will also help the City provide a "single face" to government services through a customer-centric (rather than a department-centric) approach to service delivery. More specifically, information technology will enable the City to address the following key business drivers identified during the strategic planning process.

- **Improve City Services and Cost Effectiveness** – The City needs to continuously provide services in the most cost-effective manner while striving to improve its ability to react and respond to its citizens. These improvements should result in enhanced customer satisfaction and increased worker productivity. With the Mayor calling for San Diego to become a "*City of Villages*," significant investment in the provision of distributed City services will have to be made. Information technology requirements are a key factor to be considered in ensuring the effectiveness of this program. Use of information technology tools, like the provision of services on the Internet, would increase the accessibility of City services across all regions.
- **Provide Excellent Citywide Communications Both Internally and Externally** – In the era of the Internet, the City is not only expected to be able to effectively communicate internally but also to facilitate effective communications with its external stakeholders and customers. This means that the City needs a baseline level of technology capabilities that enables seamless communications and ubiquitous access to data. In addition, as the City leads the efforts in restructuring regional government and building a new library system, the ability to effectively communicate and access information across the organization and with external agencies will become critical.
- **Improve Customer Access to City Information and Opportunity to Provide Feedback** – The City's citizens expect fast and easy access to City information, as well as the ability to provide feedback through different channels of communications (i.e., "high touch" and "high tech"). A recent survey indicated that residents want the City to provide actual services, in addition to distributing information, via the City's Web site. The services perceived as most useful to be provided on the Web site were the ability to:
  - Request City services such as streetlight repair, road sign repair, or missed trash pick up
  - Check the status of requested services
  - Check water bill or meter reading
  - Access information and services provided by other government agencies, such as the County and state governments
  - Pay bills, fines or taxes

- **Facilitate Economic Development –** The City has successfully established, and will continue to establish, strategic partnerships with businesses and the private sector. It will continue to be a business-friendly community and will ensure that the City's technology capabilities reflect the capabilities of its region. The City's technology infrastructure must support electronic commerce and a "one-stop" approach to eliminate any potential barriers to doing business with the City.
- **Accommodate Political Direction and Legislative Mandates –** The City has an obligation not only to its citizens but also to its elected officials to ensure compliance with legislative mandates and political direction. The Mayor is seeking to increase confidence in City leadership by establishing an Ethics Commission. Information technology can play an important role in helping to inform, educate and facilitate communication about ethical issues within the City and with the public.
- **Commitment to Public Health, Safety and Welfare** – The City's primary responsibility is to ensure the health and safety of its citizens. This is reflected by the Mayor's goals for making San Diego America's safest city and cleaning up the City's beaches and bays. Information technology is crucial for public safety communications and automation of administrative processes. Information technology tools also aid in the tracking, monitoring and prevention of environmental pollution.

The IT **Vision** statement drives the Strategic Plan by describing what the City must achieve to reach its full potential. The Vision articulates a destination for the City and reflects its high ideals as the City looks to the future.

The IT **Mission** statement expresses the City's IT purpose and describes its role, responsibility and commitment in carrying out the Strategic Plan to ensure the realization of the City's IT vision.

The IT Executive Team and IT Governance Committee developed the following IT Vision and Mission statements.

IT Vision

The City will use state of the art Information Technology:

- **To be the leader in the delivery of excellent services**
- **To attract and retain industry and commerce that enhance the economic future of San Diego**
- **To serve its diverse communities**

IT Mission

The City will:

- **Use information technology to enhance our local economy**
- **Use technology to promote relationship building and community development**
- **Ensure technology supports the sustainability of our quality of life**
- **Effectively manage and creatively use information technology resources to support and enable excellent and responsive municipal services**
- **Provide equitable and affordable access to information and services to all our customers**

The City's information technology infrastructure will:

- **Be dynamic and flexible**
- **Enhance the opportunity for public and private partnerships in service delivery**

IT STRATEGIC GOALS AND OBJECTIVES

The City identified the following strategic goals that will help achieve its vision for information technology. A more comprehensive description of these goals and their associated objectives and initiatives can be found in Section 5 - Strategic Priorities.

Strategic Goal 1: Improve the delivery and cost-effectiveness of IT services

The City has a unique IT service delivery model. The majority of the City's IT services are provided through SDDPC, a non-profit organization and wholly owned subsidiary of the City established in 1979. The City maintains a small, centralized Information Technology and Communications Department (IT&C), which focuses on Citywide initiatives and programs, enterprise architecture and standards and manages the Operating Agreement and Service Level Agreement (SLA) with SDDPC. Several City departments have augmented their IT service delivery capabilities through a decentralized approach, using in-house IT staff responsible for acting as liaisons with SDDPC and IT&C as well as providing first-level technical support to the departments.

Improving the City's IT service delivery is critical in helping achieve the Mayor's top ten goals and the vision for a "*City worthy of our affection*." Also, improving IT services will enable the City to enhance its service delivery through multiple channels, including electronic service delivery. It requires the City's IT organization and processes to be nimble and flexible to quickly respond to the needs of the City's constituents, employees, and other governmental agencies. IT service delivery should provide maximum value to the City, resulting in more cost-effective utilization of resources. As the City expands its service delivery capabilities to its customers, it is important to ensure that project management and IT system maintenance and support functions are optimized. To achieve this goal, the following objectives were identified:

Objectives:

- Improve services provided from SDDPC and by the City, including sourcing options
- Clarify IT organizational and staff roles and responsibilities for both City and SDDPC
- Improve hiring and retention of qualified City IT staff
- Enhance City IT staff skills and expertise
- Enhance City capabilities to assume bottom line accountability on IT projects
- Reduce IT project cost and schedule overruns
- Establish structured approach to help ensure successful IT projects
- Establish performance metrics to measure the effectiveness of the City and its IT service provider(s) in the delivery and management of IT services

Strategic Goal 2: Enhance the ability to make business-driven IT decisions

A key component to achieving this goal is the recognition by City decision makers that IT is a strategic tool for enhancing the City's internal and external service delivery channels. As such, it has to be managed with an enterprise-wide emphasis to ensure that the City's collective capabilities and resources are leveraged. A modified IT governance framework will enable key decision makers across the City to decide on key IT projects and the City's overall IT directions. Recently, the City deployed its Business Case methodology as a first step to assist departments in planning for new IT projects, and provide City decision makers with pertinent information to determine the business value of an IT project.

In addition to addressing the City's IT governance framework, the City, using recommendations from SDDPC, will establish enterprise architecture standards and an application portfolio. Application portfolio management will enable the City to better evaluate and allocate its investments in application deployment and maintenance (e.g., applications to be maintained or retired). To achieve this goal, the following objectives were identified:

Objectives:

- Maximize the City's capabilities for making IT decisions
- Improve the planning and monitoring of IT funding and budgeting
- Appropriately manage the allocation of IT funding and staff resources
- Achieve organization-wide buy-in and support of IT decisions and strategic directions
- Consistently apply and enforce IT standards, policies and procedures

Strategic Goal 3: Establish the technical infrastructure to provide electronic service delivery channels to citizens and facilitate economic growth

Several initiatives are underway to enhance the City's IT infrastructure in support of electronic service delivery capabilities (e.g., Electronic Bill Presentment and Payment). In a recent citizen survey, San Diego citizens indicated a desire to see more City services provided online, through the City's Web site. Customers expect the City's business hours to be flexible, and consistent with how customers conduct their daily lives. There is an expectation that some services would be available 24 hours a day, seven days a week. In addition, the City intends to facilitate its economic development by being responsive to business customers and minimizing potential barriers to conducting business with City government. In order to meet the demand of its citizens and business community, the City needs to ensure that its technical infrastructure can support the services desired by its customers, and provide these services anytime, anywhere. To achieve this goal, the following objectives were identified:

Objectives:

- Improve internal and external communications infrastructure capabilities
- Ensure security and privacy of electronic transactions
- Enhance transaction services provided through the City's Web site
- Enhance electronic commerce capabilities

Strategic Goal 4: Improve internal City operations and management's ability to make informed decisions

Ubiquitous access to information is critical to City executives for making informed decisions. For example, in measuring the performance of a capital improvement project, it is essential to be able to quickly access information on the progress of the project, determine its initial budget, and identify expenditures against the budget. This is currently achieved by accessing multiple autonomous systems. Competitiveness of City services such as library, water, sewer, transportation, and trash collection with their private sector counterparts is also a strategic consideration, as well as the ability to measure performance and ensure accountability of City departments and employees. To achieve this goal, the following objectives were identified:

Objectives:

- Improve access to Citywide information to facilitate management decision making
- Streamline internal business and operational support functions
- Enhance ability to respond to service requests
- Maximize employee productivity and effectiveness
- Minimize total IT cost of ownership

ACHIEVING THE IT GOALS AND OBJECTIVES

In order to achieve the City's IT goals and objectives, initiatives were identified that would address both the organizational and technical aspects of the City's information technology environment. Some of these initiatives are IT projects that are currently underway; most are planned for phased implementation over the next three to five years. These initiatives are fully described in Section 8 - Implementation Plan.

IT Organization and Staffing Initiatives

From an IT organizational perspective, the highest priority for the City is to address its IT service delivery methods and capabilities to ensure that funding and staff resources are optimized for deployment and support of IT solutions. The City spends approximately $90 million annually in support of IT. It is envisioned that through the successful completion of these initiatives, the City will be able to more proactively and cost-effectively manage its IT resources. In addition, with the implementation of a Citywide IT governance process, decisions regarding IT will have an organization-wide focus and support, resulting in synergistic opportunities as well as leveraging the City's collective IT resources.

Several IT service delivery models were considered during the planning process. Options discussed included 1) using internal City staff (centralized vs. decentralized) to provide all IT services, 2) using internal City staff for some functions with other services performed by an external provider (such as SDDPC or an outside entity), 3) using internal City staff for key functions with most services performed by an external provider, and 4) using an external service provider for all services, with City staff managing the contract (similar to San Diego County). Centralized, decentralized and hybrid IT service delivery organizational models were reviewed

during the process. The planning team also discussed using the City-owned SDDPC vs. another external provider as a primary IT service broker/provider. The following chart depicts the range of options considered.

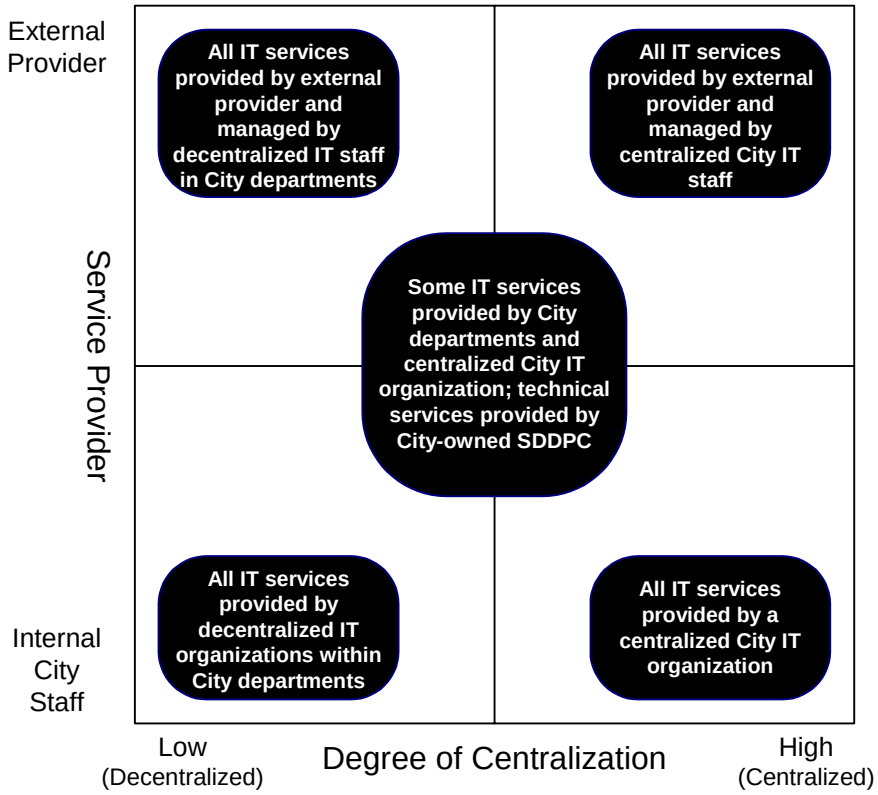


Figure 2. Service Delivery Organization Options

The recommended service delivery strategy relies on SDDPC as the City's primary IT service broker/provider. The City and SDDPC will work together to improve IT service delivery, developing a framework to evaluate current service delivery capabilities and potential alternatives. SDDPC will focus on key IT services for the City, including IT design and architecture, database management, system integration and contract management, while pursuing additional sourcing options in its strategic partnership with the City. If the City is unable to achieve the capabilities and improved IT services desired using this service delivery model, the City could potentially consider using another external provider as the its primary IT service broker.

The CIO and centralized Information Technology and Communications (IT&C) Department, working through the governance process, are responsible for providing clear policy direction and Citywide focus. This small, centralized organization focuses on Citywide initiatives and programs, strategic planning, and enterprise architecture and standards. IT&C will also manage operating agreements with SDDPC and other service providers. Section 6 (Current IT Organizational Environment) and Appendix A (IT Organization and Governance) provide additional details on IT Organization roles and responsibilities.

The City and SDDPC have agreed to the following delineation of primary responsibilities in delivering information technology. As the various initiatives in the Strategic Plan are implemented to meet the City's IT vision, goals and objectives, the roles will be based on these responsibilities.

City Responsibilities	SDDPC Responsibilities
Establish IT Policy	Implement IT Policy
Approve Standards	Recommend Standards
IT Business Processes/Reengineering	IT Operations
Overall/Business Project Management	Technical Project Management

Technical and Applications Infrastructure Initiatives

From an IT technical perspective, the high priority initiatives for the City could be categorized into the four key areas below. For further description of the City's current IT technical environment, see Section 7.

- Improvements to facilitate electronic services delivery
- Support for streamlining business processes and management decision making
- Architectural framework and tools to support IT investment decisions and minimize costs
- Enhanced capabilities for internal and external communications

Four key technology areas were identified that will assist the City in implementing its IT goals and objectives: 1) Customer Relationship Management, 2) e-Government, 3) Wireless Technology, and 4) Expanded Geographic Information Systems. These technology themes are woven throughout 38 technical initiatives identified to help achieve the City's IT strategic goals and objectives. All of these initiatives, in turn, rely upon a key initiative that provides the minimum technology capabilities needed to address the City's internal digital divide. By establishing and implementing a minimum technology baseline, the City will be providing its entire workforce with the tools needed to effectively communicate and deliver services to the citizens.

Successful completion of the current and new initiatives will result in a comprehensive IT infrastructure that supports the City's desired service delivery model, including more efficient business operations, enhanced management decision making, and optimized IT funding and staff resources. As illustrated in the Gartner diagram in Figure 3, IT will enable a new business model by providing ubiquitous access to information.

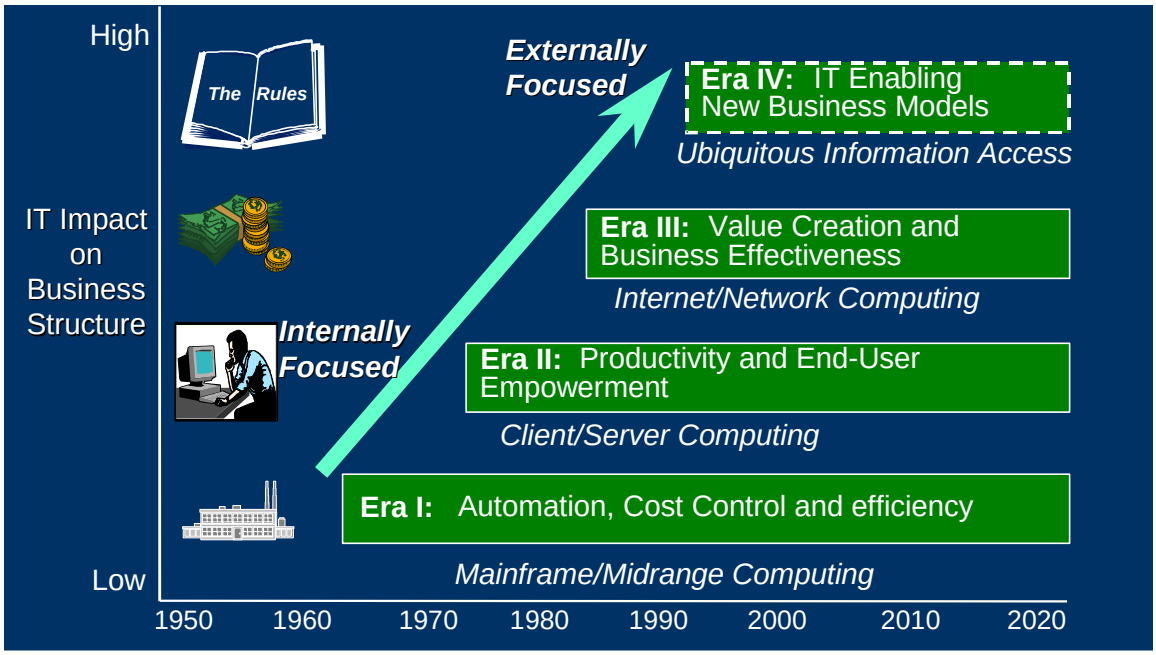


Figure 3. The Future of Information Technology (Source: GartnerGroup)

IMPLEMENTATION STRATEGY

Implementation of the City's first priority initiatives is planned for completion by fiscal year 2003. Second and third priority initiatives are planned to commence in fiscal years 2003 and 2004. An annual assessment will be conducted to ensure that planned initiatives continue to remain consistent with the City's business goals and drivers. Additional initiatives, such as the implementation of a new public safety communications infrastructure, will be identified based on the results of more detailed feasibility studies.

Following is the overall estimated budget for implementation of the City's strategic initiatives:

- FY 2002 $ 4 – $ 7 million
- FY 2003 $ 35 - $50 million
- FY 2004 $ 38 - $54 million
- FY 2005 $ 23 - $32 million
- FY 2006 $ 20 - $27 million
- Total $120 - $170 million

Using the new IT governance framework, the City's IT Governance Committee, with direction from the IT Executive Team, will oversee the implementation process. The City's CIO will direct a project management team that will establish and manage the detailed implementation plan. Funding options such as marketing partnerships, convenience fees and bond issuance will be explored. Of the initiatives identified, it is anticipated that the replacement of the City's public safety systems infrastructure and current financial and accounting systems comprises the significant portion of the City's funding needs. For a summary of the initiatives and estimated

funding requirements, please see Section 9 – High-Level Economic Analysis. Ongoing stakeholder communications will be conducted to provide regular status updates regarding the City's progress. The communication strategy is described in Section 10.

The following operating principles will guide the City and SDDPC in the implementation efforts and decision-making process.

Information Technology Operating Principles

Process

- **Information technology initiatives will be aligned with the City's overall business goals and planned with a Citywide perspective.**
- **The City's Business Case methodology will be used to plan for, and determine the business value of IT investments.**
- **A formal method to gather and define functional requirements and business processes will be utilized in the evaluation and procurement of systems.**
- **Transformation of the City's business processes to be citizen-centric and to incorporate best practices will be evaluated as part of systems implementation efforts.**
- **A formal method for the evaluation and acquisition of new technology will be used. This method must consider, at a minimum, impact on the business, total cost of ownership (TCO), vendor stability and architectural compliance.**
- **Key performance measures will be defined to manage IT services for providing consistent and timely service.**

People

- **Desired core competencies for City staff involved in information technology deployment and support will be defined and promoted through career paths and skills training.**
- **Initial and ongoing training will be provided for all users of technology.**

Technology

- **Commercial-off-the-shelf (COTS) software will be the preferred solution. Departments will evaluate COTS software to ensure compliance with business processes. The City and SDDPC will evaluate COTS software to ensure compliance with technical standards. Modifications to COTS software will be minimized.**
- **All new applications will be Web-enabled.**
- **All systems with location information will be GIS-enabled.**
- **Architectural standards will be used to provide seamless access to accurate and timely information across the City.**

CRITICAL SUCCESS FACTORS

The City has established the vision for how information and communications technology will enable the transformation of the City's business model. In order to achieve this vision and the strategic IT goals and objectives, the following critical success factors were identified:

- Strong executive sponsorship and support from City Council and City executives on the City's IT Vision and Mission
- Buy-in from City stakeholders including the various City departments
- Commitment of time and resources from the IT Governance Committee
- Funding and staff resource support to execute the Plan
- Ongoing close communications and teamwork throughout the organization
- Strong partnership with SDDPC as our preferred IT Service Provider/Broker
- Phased implementation strategy based on overall City priorities
- Regular progress assessment and communication of the implementation plan objectives
- Annual review process to ensure that the Plan goals and objectives remain consistent with the City's business needs

CONCLUSION

This IT Strategic Plan (ITSP) incorporates the input of many City stakeholders. It provides a vision for the City's future IT and delineates the City's strategic goals and objectives. It identifies key initiatives that will lead to the attainment of these goals and objectives, including the steps required to optimize the IT organizational framework, and the funding required to undertake the initiatives. Implementing these initiatives presents the City with the opportunity to constructively evolve how the City plans, procures, and manages IT and communication services to optimize the numerous benefits that technology can provide in delivering cost-effective services to our citizens. In summary, this IT Strategic Plan provides the roadmap to fully utilize the power of IT to achieve the City's business goals and truly be a *"City worthy of our affection."*

2. THE STRATEGIC PLANNING PROCESS

2.1 INFORMATION TECHNOLOGY: HELPING BUILD THE CITY WORTHY OF OUR AFFECTION

The City of San Diego (City) is the seventh largest city in the nation with an approximate population of 1.3 million residents in a 342.4 square mile area. The City has experienced significant growth especially in the science and technology areas, and has gained the preeminent position of being known as "*Technology's Perfect Climate*" and in downtown San Diego as "*Bandwidth Bay*." This growth has resulted in opportunities for economic prosperity and a high quality of life for its citizens. For example, the City's estimated year 2000 median household income is $ 45,041, reflecting a 32 percent increase from 1990. The highest household income growth in the City has come from households with an annual income of over $50,000. Gartner estimates that over 73 percent of households in this income bracket have access to the Internet. These figures indicate that the City should anticipate rapid growth in household access to the Internet.

Annual Income Level	% Change 1990 to 2000
$50,000 – $74,999	31.5%
$75,000 – $99,999	73.7%
$100,000 or more	129.4%

Table 1. Change in Household Income Level

In a telephone survey completed for the City in December 2000, it was determined that 32 percent of the adult population in San Diego accesses the City's Web page. Also, about 63 percent of San Diego homes have access to the Internet compared with only 48 percent of all U.S. households. Gartner anticipates that by the year 2005, 72 percent of US households will have access to the Internet.

In response to the City's growth and its needs to provide more cost-effective government services through various channels, including electronic services delivery, the City embarked on a planning process to address its information technology directions. The City recognizes the power of information technology (IT) to serve as an enabler to achieve its business goals and challenges, including the Mayor's vision for a "*City worthy of our affection."* The Information Technology Strategic Plan (ITSP) is intended to define the City's vision of the future for information technology and the key strategies for achieving this vision. It will provide Citywide guidance and direction for the management and development of IT within the City of San Diego over the next three to five years.

2.2 STRATEGIC PLANNING PROJECT GOALS AND OBJECTIVES

The strategic planning process was specifically designed to be inclusive, business-driven, and consensus-based. The City engaged GartnerGroup, Inc., an independent information technology research and management consulting firm to help facilitate the strategic planning process. The following are the City's key planning objectives:

- Address the actions approved by the Rules Committee on January 11, 1999
  - Provide more City emphasis on IT planning and management, including revised governance process
  - Clarify/implement customer-provider relationship with SDDPC
  - Consider modifying SDDPC's role, including consideration of private external service providers
- Provide a blueprint for the implementation of technical strategies in the following key areas:
  - Citywide systems
  - New application development areas
  - New and evolving technologies
  - Technical infrastructure, including hardware, software standards and voice and data network
- Develop and implement IT best practice policies and processes
- Develop decision making criteria for future technology investments
- Provide the City with a blueprint for organizational strategies in the following key areas:
  - Management of information technology, including roles and responsibilities of IT staff
  - Ongoing governance of information technology investments, expenditures, and overall integration of IT departmental plans with business goals and strategies
  - Management of the City's IT services delivery organization.

2.3 INCLUSIVE AND BUSINESS-DRIVEN: KEY STAKEHOLDERS

The ITSP was developed with extensive participation from City stakeholders. Ownership, guidance, and direction of the planning process was provided by the following:

- Information Technology Executive Team – Comprised of the senior executives of the City: Manager, Deputy City Managers, Auditor and Comptroller, and Personnel Director
- Information Technology Governance Committee (ITGC) – Comprised of department directors and other executives appointed by the IT Executive Team
- Chief Information Officer (CIO) – Executive sponsor of the IT strategic planning process
- Information Technology Strategic Plan Project Manager
- Information Technology and Communications (IT&C) Department

Other internal and external stakeholders who provided input include:

- City Council Representatives
- Department Management and Operational Representatives
- San Diego Data Processing Corporation (SDDPC)
- Science and Technology Commission – Comprised of City business leaders appointed by the City Council to provide guidance to the City on strategic directions.
- Residents of the City of San Diego – The City solicited input through a survey conducted by an independent organization.

The following diagram illustrates the strategic planning process:

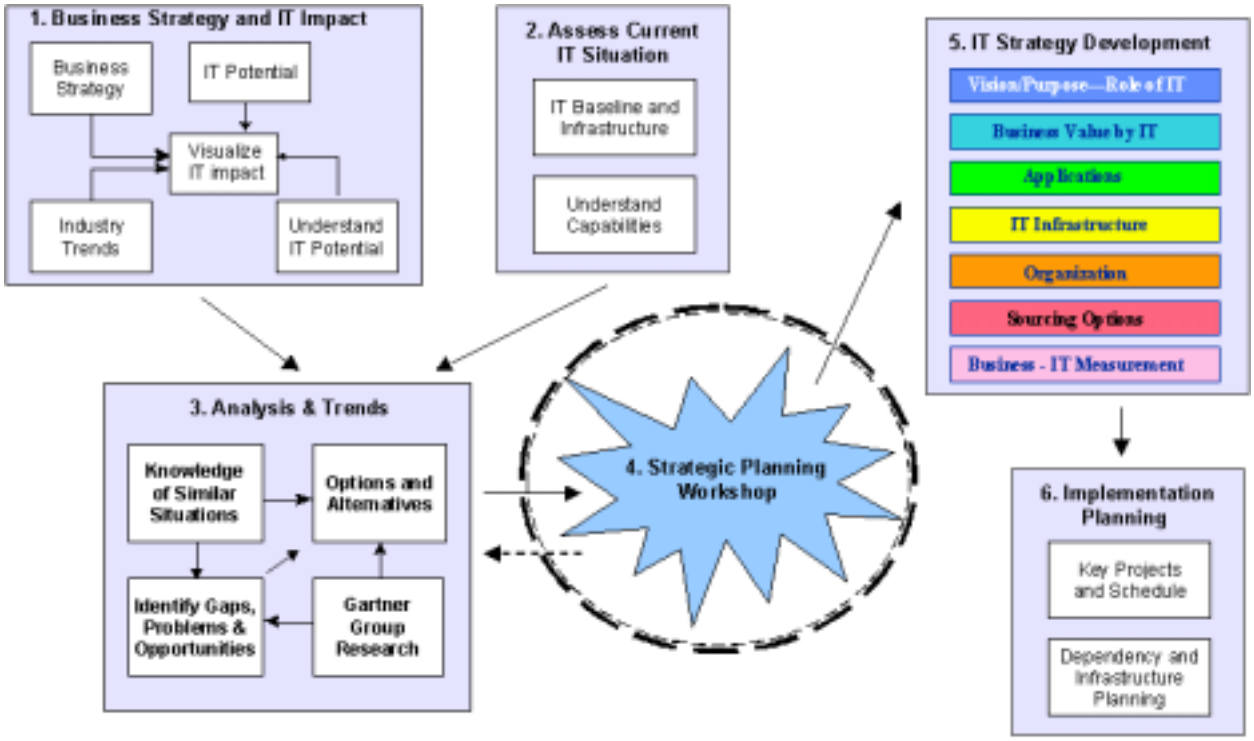


Figure 4. Strategic Planning Process

The Strategic Planning Process consisted of the following steps:

1. Clarifying the City's business goals and drivers and the potential impact of information technology on the City's business and service delivery.
2. Assessing the current IT situation within the City in order to define the baseline IT environment and understand current IT capabilities.
3. Performing an analysis of the use of IT within the City based upon knowledge of similar situations, Gartner research, and industry trends and best practices. The analysis resulted in an identification of strategic IT issues and opportunities for the City.

4. Defining IT strategies through an inclusive workshop process with City stakeholders. Results include:
   - Development of a City IT vision and mission
   - Defining the business value of IT within the City
   - Developing strategies for business applications and systems
   - Developing IT infrastructure strategies
   - Developing IT organizational strategies
   - Identifying IT sourcing options
   - Defining performance metrics for IT from a business perspective for both SDDPC and the City
5. Developing an Implementation Plan to define key projects and anticipated schedules, including project dependencies as appropriate.
6. Reviewing the draft IT Strategic Plan with SDDPC to reach a consensus view as strategic partners in developing the final document.

3. BUSINESS ENVIRONMENT

3.1 CITY GOVERNMENT

The City government is a large, complex organization that serves a growing, dynamic and diverse set of customers. These customers include the citizens, the business community, and City departments and programs. There are approximately 10,600 employees who provide services to an estimated 1.3 million citizens. These employees are organized into 24 City departments. Of the 24 departments, four are independent departments (i.e., Auditor & Comptroller, City Clerk, Personnel, and Retirement) who report to the City Council, an independent board or commission. The City Attorney is an elected official who leads the City Attorney's Office. In addition, there are four departments that generate direct revenues for the City and are primarily funded through "enterprise funds" (i.e., Water, Metropolitan Wastewater, Environmental Services, and Development Services).

Most departments obtain funding primarily from general funds and some, such as Library and Police, also have external funding sources. The City's total combined proposed budget for Fiscal Year 2002 is $2.4 billion, which represents an increase of $78 million over Fiscal Year 2001. The City's organizational structure is illustrated in Figure 5 and Figure 6 on the following pages.

Within the City of San Diego, San Diego Data Processing Corporation (SDDPC) provides primary service delivery for information technology. SDDPC was formed in 1979 as an independent City-owned non-profit corporation. SDDPC employs approximately 400 full time staff. In addition to SDDPC, the City has a combined total of about 155 information technology and communications staff. Sixty-seven positions are centralized within the Information Technology and Communications (IT&C) Department (50 in Communications and 17 in IT), and 85 are decentralized within City departments. IT&C reports to the Office of Technology Services, which has a total staff of 3, headed by the CIO.

SDDPC's annual budget as it relates to the City's IT projects and services is approximately $80 million. The City estimates that an additional $5 - $10 million, outside of SDDPC, is spent on information and communications technology, for a total annual expenditure of approximately $90 million. This expenditure supports the development and operational maintenance of the City's technology infrastructure including: 7,800 desktop computers, 9,500 network connections, and 10,500 telephones/fax lines. The City currently has approximately 160 IT projects in progress.

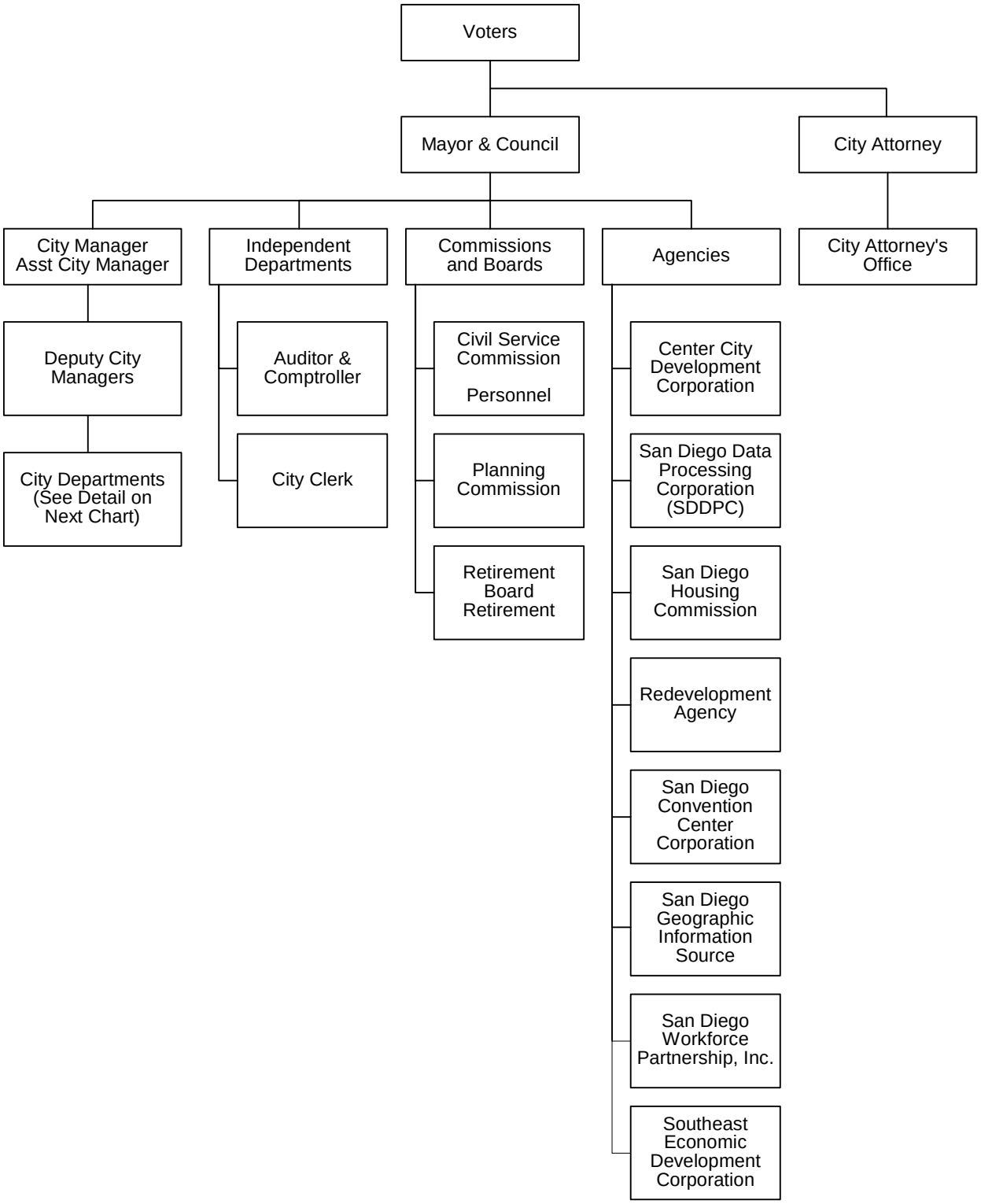


Figure 5. City of San Diego Overall Citywide Organizational Structure

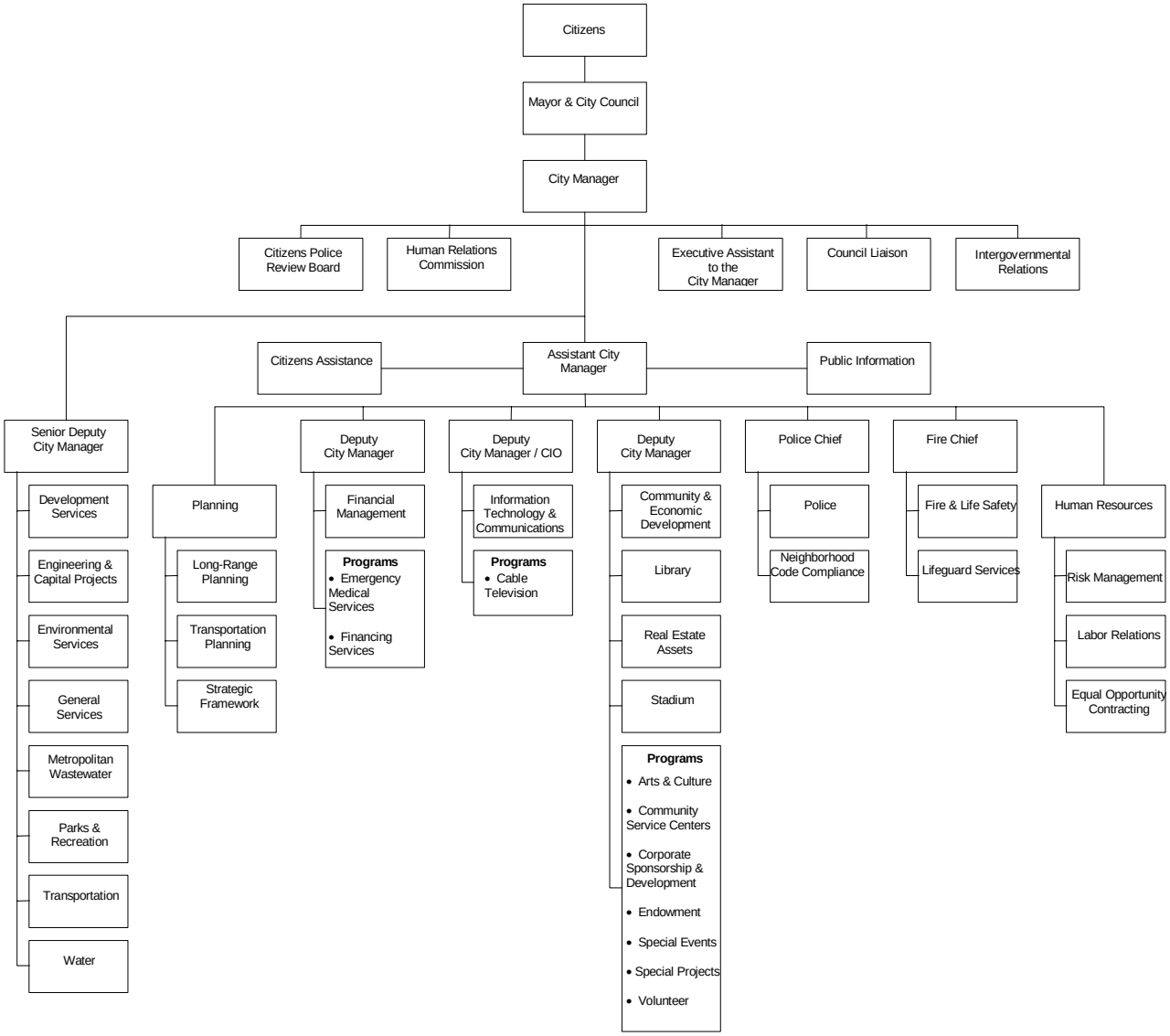


Figure 6. Detail City Departments Organization Under The City Manager

The City's vision, goals, and business drivers are described below.

3.2 CITY OF SAN DIEGO VISION

In the State of the City Address on January 8, 2001, the Mayor defined "*A Vision for San Diego in the Year 2020: A City Worthy of Our Affection*." This vision is encapsulated in the Mayor's ten key goals for the City, as follows:

1. Establish an Ethics Commission	**6. Complete the Ballpark**
2. Reduce Traffic Congestion	**7. Build a Library System**
3. Create Neighborhoods We Can Be Proud Of	**8. Make San Diego America's Safest City**
4. Clean Up Our Beaches and Bays	**9. Pursue Energy Independence**
5. Restructure Regional Government/ Construct An Airport	**10. Complete MSCP Open Space Acquisitions**

3.3 KEY BUSINESS DRIVERS

The IT Executive Team and IT Governance Committee identified the following six key business drivers that impact the City's IT strategic plan:

- **Improve City Services and Cost Effectiveness** – The City needs to continuously provide services in the most cost-effective manner while striving to improve its ability to react and respond to its citizens. These improvements should result in increased worker productivity and enhanced customer satisfaction. With the Mayor calling for San Diego to become a "*City of Villages*," significant investment in the provision of distributed City services will have to be made. Information technology requirements are a key factor to be considered in ensuring the effectiveness of this program. Use of information technology tools, like the provision of services on the Internet would increase the accessibility of City services across all regions.
- **Provide Excellent Citywide Communications Both Internally and Externally** – In the era of the Internet, the City is not only expected to be able to effectively communicate internally but also to facilitate effective communications with its external stakeholders and customers. This means that the City needs a baseline level of technology capabilities that enables seamless communications and ubiquitous access to data. In addition, as the City leads the efforts in restructuring regional government and building a new library system, the ability to effectively communicate and access information across the organization and with external agencies will become critical.
- **Improve Customer Access to City Information and Opportunity to Provide Feedback** – The City's citizens expect the ability to efficiently access City information, as well as provide feedback through different channels of communications (i.e., "high touch" and "high tech"). A recent survey indicated that residents want the City to provide actual services, in addition to distributing information, via the City's Web site. The services perceived as most useful to be provided on the Web site were the ability to:

  - Request City services such as streetlight repair, road sign repair, or missed trash pick up
  - Check the status of requested services
  - Check water bill or meter reading
  - Access information and services provided by other government agencies, such as the County and state governments
  - Pay bills, fines or taxes

- **Facilitate Economic Development –** The City has successfully established, and will continue to establish strategic partnerships with businesses and the private sector. It will continue to be a business-friendly community and will ensure that the City's technology capabilities reflect the capabilities of the region. The City's technology infrastructure will support electronic commerce and a "one-stop" approach to eliminate any potential barriers to doing business with the City.
- **Accommodate Political Direction and Legislative Mandates –** The City has an obligation not only to its citizens but also to its elected officials to ensure compliance with legislative mandates and political directions. The Mayor is seeking to increase the confidence in City leadership by establishing an ethics commission. Information Technology can play an important role in helping to inform, educate and facilitate communication about ethical issues within the City and with the public.
- **Commitment to Public Health, Safety and Welfare** – The City's primary responsibility is to ensure the health and safety of its citizens. This is reflected by the Mayor's goals for making San Diego America's Safest City and cleaning up the City's beaches and bays. Information technology is crucial for public safety communications and automation of administrative processes. Information technology tools also aid in the tracking and monitoring of environmental pollution.

The City must respond to these business drivers with enabling technologies. At the same time, it must recognize and address a key barrier to technology for the City's citizenry: The Digital Divide.

3.4 KEY CHALLENGE: BRIDGING THE DIGITAL DIVIDE

The "Digital Divide" is defined as the gap in opportunities experienced by those with limited accessibility to technology, especially Internet access across all demographic segments. Similar to other large public sector agencies, the City is faced with the challenge of providing services to a diverse population of citizens with varying levels of accessibility to electronic computing resources. The City faces the following challenges in bridging the digital divide:

- Economic - Inability of residents to afford Internet access. Only about 50% of San Diego households with an annual income below $20,000 have access to the Internet.
- Educational - Inability of residents to access the Internet due to lack of knowledge. Only 52% of residents with less than a high school education have access to a computer in San Diego, while 81% with a high school education have access.
- Physical - Inability of residents to access the Internet due to physical disabilities, e.g., blindness.

- Cultural - Inability or unwillingness of residents to access the Internet due to the language barrier or other cultural reasons. The City provides services to citizens from diverse cultural background. The following breakdown shows Internet usage among the City's key cultural indicators.

57.9% - Latinos
69.7% - African Americans
71.5% - Asian Americans
77.2 % - Caucasians

As a result of a survey of 1,600 San Diego households conducted by the City between November 16 and December 5, 2000, the following conclusions have been made that identify key services desired for electronic access and address the City's digital divide challenge.

- 63% of San Diego households have access to the Internet. Though this is significantly higher than the national average of 48%, as the City considers electronic service delivery, it will have to maintain multiple information and communications channels for the foreseeable future, allowing citizen access through phone, Internet and in person. Currently, 17% of San Diego residents (approximately 220,000 plus citizens) without Internet access at home use the City libraries to access the Internet.
- As in many U.S. cities, San Diego Internet access differs across regional and demographic segments. Figure 7 shows Internet household accessibility in San Diego by region. The City will have to evaluate the specific segment of the population they serve to determine the optimal Internet strategy for its constituencies.

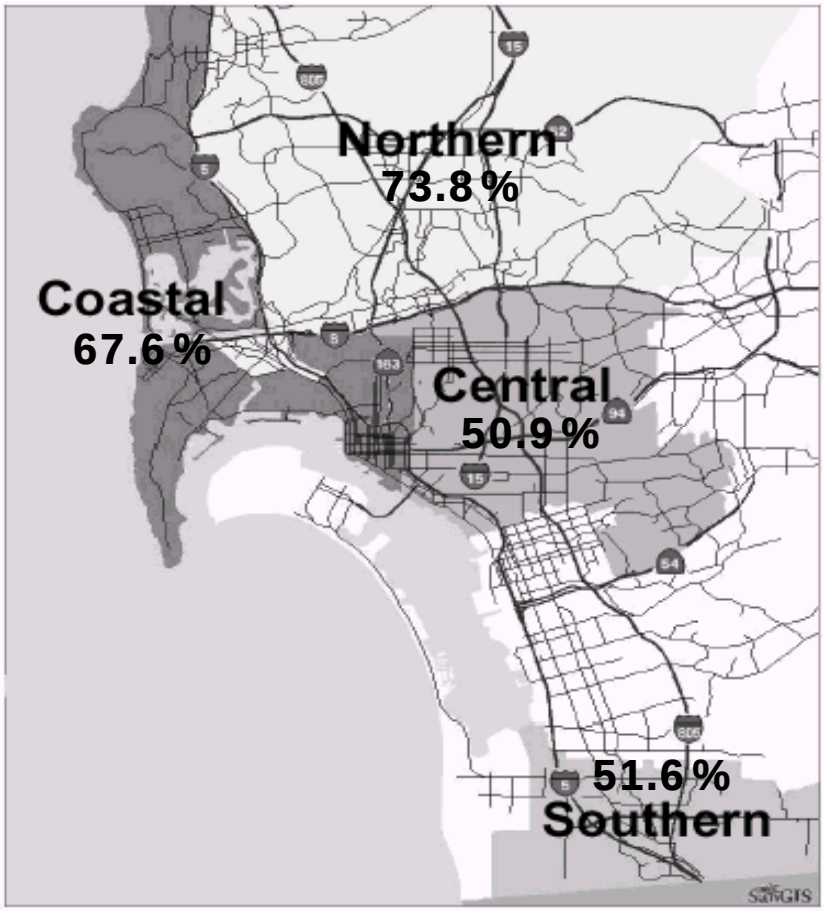


Figure 7. San Diego Regional Household Access to the Internet

- Consistent with the Mayor's goal of a "*City of Villages*," the means of accessing City services provided electronically will depend heavily on the region being served. For example, more alternative means of Internet access such as through libraries and community service centers and partnerships with non-profit community technology groups, would have to be developed in those areas with lower household Internet accessibility.
- The City will have to ensure that tactical programs to bridge the digital divide tackle each of the identified challenges:
  - Economic: For example, provision of financial incentives to City employees to purchase a computer, or marketing partnership opportunities with the business community
  - Educational: For example, universal access to computers and the Internet in schools, community colleges and other adult education centers
  - Physical: For example, provision of specialized services to accommodate the physically challenged, e.g., City Web site designed to accommodate the visually impaired
  - Cultural: For example, ensuring key Web site information is provided in multilingual formats.

The remainder of this Strategic Plan outlines how information and communications technology will assist the City in meeting its business goals and objectives, including some of the challenges posed by the Digital Divide. The subsequent sections include the City's IT vision, mission, and operating principles as well as IT strategic goals, objectives, and associated initiatives for Fiscal Years 2002 through 2006.

4. IT VISION, MISSION, OPERATING PRINCIPLES AND BUSINESS REQUIREMENTS

4.1 IT VISION AND MISSION

The City views information technology as an enabling tool in achieving its business goals and objectives. Specifically, it is a tool that will facilitate transformation of the City's service delivery model for enhanced services to its citizens and improved City operations.

The IT **Vision** statement drives the Strategic Plan by describing what the City must achieve to reach its full potential. The Vision articulates a destination for the City and reflects its high ideals as the City looks to the future.

The IT **Mission** statement expresses the City's IT purpose and describes its role, responsibility and commitment in carrying out the Strategic Plan to ensure the realization of the City's IT vision.

City Of San Diego IT Vision

The City will use state of the art Information Technology:

- **To be the leader in the delivery of excellent services**
- **To attract and retain industry and commerce that enhance the economic future of San Diego**
- **To serve its diverse communities**

City Of San Diego IT Mission

The City will:

- **Use information technology to enhance our local economy**
- **Use technology to promote relationship building and community development**
- **Ensure technology supports the sustainability of our quality of life**
- **Effectively manage and creatively use information technology resources to support and enable excellent and responsive municipal services**
- **Provide equitable and affordable access to information and services to all our customers**

The City's information technology infrastructure will:

- **Be dynamic and flexible**
- **Enhance the opportunity for public and private partnerships in service delivery**

4.2 KEY OPERATING PRINCIPLES

The City and SDDPC will use the following key principles to guide information technology decision-making:

City of San Diego Information Technology Operating Principles

Process

- **Information technology initiatives will be aligned with the City's overall business goals and planned with a Citywide perspective**
- **The City's Business Case methodology will be used to plan for, and determine the business value of, IT investments**
- **A formal method to gather and define functional requirements and business processes will be utilized in the evaluation and procurement of systems**
- **Transformation of the City's business processes to be citizen-centric and to incorporate best practices will be evaluated as part of systems implementation efforts**
- **A formal method for the evaluation and acquisition of new technology will be used. This method must consider, at a minimum, impact on the business, total cost of ownership (TCO), vendor stability and architectural compliance.**
- **Key performance measures will be defined to manage IT services for providing consistent and timely service.**

People

- **Desired core competencies for City staff involved in information technology deployment and support will be defined and promoted through career paths and skills training**
- **Initial and ongoing training will be provided for all users of technology.**

Technology

- **Commercial-off-the-shelf (COTS) software will be the preferred solution. Departments will evaluate COTS software to ensure compliance with business processes. The City and SDDPC will evaluate COTS software to ensure compliance with technical standards. Modifications to COTS software will be minimized.**
- **All new applications will be Web-enabled**
- **All systems with location information will be GIS-enabled**
- **Architectural standards will be used to provide seamless access to accurate and timely information across the City.**

4.3 HIGH-LEVEL BUSINESS REQUIREMENTS

Over thirty focus groups and workshops with City executive management and staff were conducted to help determine Citywide and departmental business requirements that have an impact on the City's IT strategies. The following requirements provide the consistent themes articulated by City stakeholders in order of commonality among all groups.

a) Improve IT service delivery within the City
b) Formalize Citywide processes for communication of individual Department and Citywide IT initiatives
c) Attract and retain knowledgeable IT staff for both the City and SDDPC
d) Address IT inequities between departments
e) Ensure that IT service delivery and procurement processes are provided at competitive cost levels
f) Increase efficiency of communication within individual departments, within the City, with SDDPC, with external agencies, and with the public.
g) Improve wireless communication.
h) Establish and consistently apply information technology standards within the City.
i) Facilitate better knowledge management within the City.
j) Ensure coordinated IT training for both business and IT staff (in City and SDDPC).
k) Explore opportunities for providing City services over the Internet (e-Government).
l) Develop efficient and flexible information access and exchange of data across the City and with external agencies.
m) Develop replacement plans and strategies for obsolete and dysfunctional IT systems and infrastructure.
n) Improve Citywide procedures for information archival, storage and retrieval, and ensure that they meet state and federal mandates.
o) Enhance customer service through single point access to City services.
p) Improve inventory-control systems to assist in accurate asset management.
q) Explore public-private partnerships, to fund and develop IT within the City.
r) Improve IT systems security.

The following section describes the City key IT strategic goals, objectives, and initiatives to achieve the City's business goals and objectives, and the vision for IT.

5. STRATEGIC PRIORITIES

5.1 MEETING THE CITY'S IT VISION AND MISSION

This section summarizes the City's strategic IT priorities. IT strategic goals were defined to help achieve the City's IT vision, mission, and business drivers. The matrix below summarizes the City's four strategic goals and the objectives established to help achieve those goals. Key initiatives, both current and planned, have also been identified and linked with the strategic goals and objectives. This provides a mechanism for measuring the successful completion of the IT initiatives in meeting the City's strategic goals and objectives. It also provides the City with a strategic framework for evaluating and prioritizing additional IT initiatives in the future.

Strategic Goal 1 : Improve The delivery and cost-effectiveness of IT services

The City has a unique IT service delivery model. The majority of the City's IT services are provided through SDDPC, a non-profit organization and wholly owned subsidiary of the City established in 1979. The City maintains a small, centralized Information Technology and Communications Department (IT&C), which focuses on Citywide initiatives and programs, enterprise architecture and standards and manages the Operating Agreement and Service Level Agreement (SLA) with SDDPC. Several City departments have augmented their IT service delivery capabilities through a decentralized approach, using in-house IT staff responsible for acting as liaisons with SDDPC and IT&C as well as providing first-level technical support to the departments.

Improving the City's IT service delivery is critical in helping achieve the Mayor's top ten goals and the vision for a "*City worthy of our affection*." Also, improving IT services will enable the City to enhance its service delivery through multiple channels, including electronic service delivery. It requires the City's IT organization and processes to be nimble and flexible to quickly respond to the needs of the City's constituents, employees, and other governmental agencies. IT service delivery should provide maximum value to the City, resulting in more cost-effective utilization of resources. As the City expands its service delivery capabilities to its customers, it is important to ensure that project management and IT system maintenance and support functions are optimized.

Objectives	Initiatives
1. Improve services provided from SDDPC and by the City, including sourcing options	1. Establish a Customer/Provider Model with SDDPC
2. Clarify IT organizational and staff roles and responsibilities for both City and SDDPC	2. Redefine the City's Internal IT Organization
3. Improve hiring and retention of qualified City IT staff	
4. Establish performance metrics to measure the effectiveness of the City and its IT service provider(s) in the delivery and management of IT services	
5. Enhance City IT staff skills and expertise	
6. Enhance City capabilities to assume bottom line accountability on IT projects	3. Develop a City Program Management Office
7. Reduce IT project cost and schedule overruns	
8. Establish structured approach to help ensure successful IT projects	

Strategic Goal 2 : Enhance the ability to make business-driven IT decisions

A key component to achieving this goal is the recognition by City decision makers that IT is a strategic tool for enhancing the City's internal and external service delivery channels. As such, it has to be managed with an enterprise-wide emphasis to ensure that the City's collective capabilities and resources are leveraged. A modified IT governance framework will enable key decision makers across the City to decide on key IT projects and the City's overall IT directions. Recently, the City deployed its Business Case methodology as a first step to assist departments in planning for new IT projects, and provide City decision makers with pertinent information to determine the business value of an IT project.

In addition to addressing the City's IT governance framework, the City, using recommendations from SDDPC, will establish enterprise architecture standards and an application portfolio. Application portfolio management will enable the City to better evaluate and allocate its investments in application deployment and maintenance (e.g., applications to be maintained or retired).

Objectives	Initiatives
1. Maximize the City's capabilities for making IT decisions	1. Implement an enhanced IT Governance framework
2. Improve the planning and monitoring of IT funding and budgeting	2. Develop an enterprise architecture plan
3. Appropriately manage the allocation of IT funding and staff resources	3. Develop and establish an applications portfolio
4. Achieve organization-wide buy-in and support of IT decisions and strategic directions	
5. Consistently apply and enforce IT standards, policies and procedures	

Strategic Goal 3 : Establish the technical infrastructure to provide electronic service delivery channels to citizens and facilitate economic growth

Several initiatives are underway to enhance the City's IT infrastructure in support of electronic service delivery capabilities (e.g., Electronic Bill Presentment and Payment). In a recent citizen survey, San Diego citizens indicated a desire to see more City services provided online, through the City's Web site. Customers expect the City's business hours to be flexible, and consistent with how customers conduct their daily lives. There is an expectation that some services would be available 24 hours a day, seven days a week. In addition, the City intends to facilitate its economic development by being responsive to business customers and minimizing potential barriers to conducting business with City government. In order to meet the demand of its citizens and business community, the City needs to ensure that its technical infrastructure can support the services desired by its customers, and provide these services anytime, anywhere.

Objectives	Initiatives
1. Improve internal and external communications infrastructure capabilities	1. Expand private paging infrastructure – in progress 2. Evaluate wireless data infrastructure requirements – in progress 3. Improve computing infrastructure 4. Plan for public safety voice and data systems upgrade 5. Upgrade Citywide group collaboration capabilities
2. Ensure security and privacy of electronic transactions	1. Assess information security infrastructure and develop enhancement strategies – in progress 2. Provide common set of secured remote access tools
3. Enhance transaction services provided through the City's Web site	1. Implement Treasurer Tax Collection System (TTCS) – in progress 2. Implement online permitting for basic permits – in progress 3. Pilot enterprise portal strategies – in progress 4. Expand Citywide and departmental e-Government planning initiatives 5. Determine customer relationship management requirements 6. Implement an enterprise portal
4. Enhance electronic commerce capabilities	1. Implement Electronic Bill Presentment and Payment – in progress 2. Implement integrated permitting and licensing 3. Evaluate e-procurement strategies

Strategic Goal 4 : Improve internal City operations and management's ability to make informed decisions

Ubiquitous access to information is critical to City executives for making informed decisions. For example, in measuring the performance of a capital improvement project, it is essential to be able to quickly access information on the progress of the project, determine its initial budget, and identify expenditures against the budget. This is currently achieved by accessing multiple autonomous systems. Competitiveness of City services such as library, water, sewer, transportation, and trash collection with their private sector counterparts is also a strategic consideration, as well as the ability to measure performance and ensure accountability of City departments and employees.

Objectives	Initiatives
1. Improve access to Citywide information to facilitate management decision making	1. Implement ad hoc reporting and Intranet/Internet access to budget system – in progress 2. Implement Project Tracking system – in progress 3. Implement Injury Tracking and Safety System (ITSS) – in progress 4. Implement Criminal Records Management System (CRMS) – in progress 5. Implement Computerized Operations Management Network (COMNET) – in progress 6. Evaluate workflow and digital signatures for 1472 process - in progress 7. Implement mobile data computers – in progress 8. Implement Case Management System 9. Evaluate options to replace AMRIS 10. Evaluate options for an integrated human resources and payroll system 11. Evaluate e-procurement strategies 12. Establish plan for Citywide integrated document management 13. Implement GPS/AVL for field operations 14. Implement integrated asset management system
2. Streamline internal business and operational support functions	

Strategic Goal 4 (Continued): Improve internal City operations and management's ability to make informed decisions	
Objectives	**Initiatives**
3. Enhance ability to respond to service requests	1. Implement Web-based operations reporting system (E-DORS) – in-progress 2. Implement integrated maintenance and work order system (PISCES) – in progress 3. Upgrade Computer Aided Dispatch system – in progress 4. Implement service request/work management system (SYNERGY project phase V) – in progress 5. Determine customer relationship management requirements 6. Develop plan for integrated work order, service request, and maintenance management systems 7. Integrate work order and service request systems with maintenance management system(s)
4. Maximize employee productivity and effectiveness	1. Establish minimum technology baseline 2. Enhance group collaboration capabilities 3. Expand GIS data resources 4. Establish vision and strategy for knowledge management
5. Minimize total IT cost of ownership	1. Migrate from Corel Suite to Microsoft Office Suite – in progress 2. Develop an enterprise architecture plan 3. Develop and establish an applications portfolio 4. Implement IT asset management system

6. CURRENT IT ORGANIZATIONAL ENVIRONMENT

6.1 OVERVIEW

In 1997, the City Council chartered the Select Subcommittee to conduct a review of the City's Information Technology and Communication (IT&C) Department and the independent San Diego Data Processing Corporation. They concluded that the "City of San Diego must take full responsibility and control of its information technology functions." The City took an important step in this direction when the Rules Committee of the City Council directed the City Manager to create a Chief Information Officer (CIO) position at the Deputy City Manager level. The new CIO, hired in January 2000, launched the City's IT strategic planning process in June 2000.

Through this strategic planning process, the IT Executive Team and IT Governance Committee (ITGC) have clearly articulated an IT vision for the City. Once this vision was established, the IT Executive Team and ITGC assessed the City's IT organization and staffing, governance, and project management capabilities to help the City achieve this IT vision and address the issues identified. Based on this assessment, the IT Executive Team and IT Governance Committee developed the objectives and initiatives for each area that will enable the City to effectively address the business drivers discussed earlier.

6.2 IT ORGANIZATION AND STAFFING

The City's IT organization consists of several organizations and staff responsible for IT service delivery. These service delivery organizations include, the Information Technology and Communications Department (IT&C), Department IT staff, and the San Diego Data Processing Corporation (SDDPC).

6.2.1 Overview of the Current Environment

The City has a unique IT service delivery model. The majority of the City's IT services are provided through SDDPC, a non-profit organization and wholly-owned independent corporation of the City established in 1979. SDDPC was established to address two key issues at the time: 1) IT staff hiring and retention; and 2) streamlined procurement of IT products and services. As a non-profit organization, the City had envisioned that SDDPC would enable the hiring and retention of qualified IT staff by providing them with compensation that is more competitive with the private sector. In addition, it would facilitate the procurement of large information systems, thereby enhancing the City's ability to quickly implement automation solutions. The City's primary function as sole member (owner) of SDDPC was to appoint the Board of Directors. The City's operating relationship with SDDPC was defined by an Operating Agreement, which established the Corporation as an exclusive, independent non-profit provider of IT services to the City.

Much has changed since SDDPC was formed over 21 years ago. In 1979, "data processing" consisted primarily of applications running on centralized mainframe computer systems. Today, information systems capabilities are distributed to end-users via computer desktops that provide access to information through complex technology resources. Since the inception of SDDPC, the City has augmented its IT service delivery capabilities through a decentralized approach that allows departments to hire IT staff. Departmental staff are responsible for acting as liaisons with SDDPC, managing IT projects, supporting end users, and in some cases, developing and maintaining department business applications. This decentralized approach has allowed City

departments to pursue their own needs and develop specific business applications that improve their operational capabilities.

In 1995, the City established a centralized IT organization, the Information Technology and Communications Department (IT&C), which is responsible for developing Citywide standards and policies, funding and managing Citywide projects, providing Citywide wireless services, and managing the City's Operating Agreement with SDDPC. In January 2000, the City hired a Chief Information Officer (CIO) to help establish and maintain the City's IT vision and plan for executing that vision in alignment with the City's business vision, goals and objectives. IT&C now reports to the CIO. The City's centralized IT organization has enabled the City to provide departments with a Citywide perspective regarding information and communications technology.

The following organization chart depicts the City's IT service delivery organizations and their relationships with each other and City decision-makers. The organization chart also depicts two regional Joint Powers Authorities (JPA) to which the City belongs, the Automated Regional Justice Information System (ARJIS) and San Diego Geographic Information Source (SanGIS), which also provide IT services and products to the City.

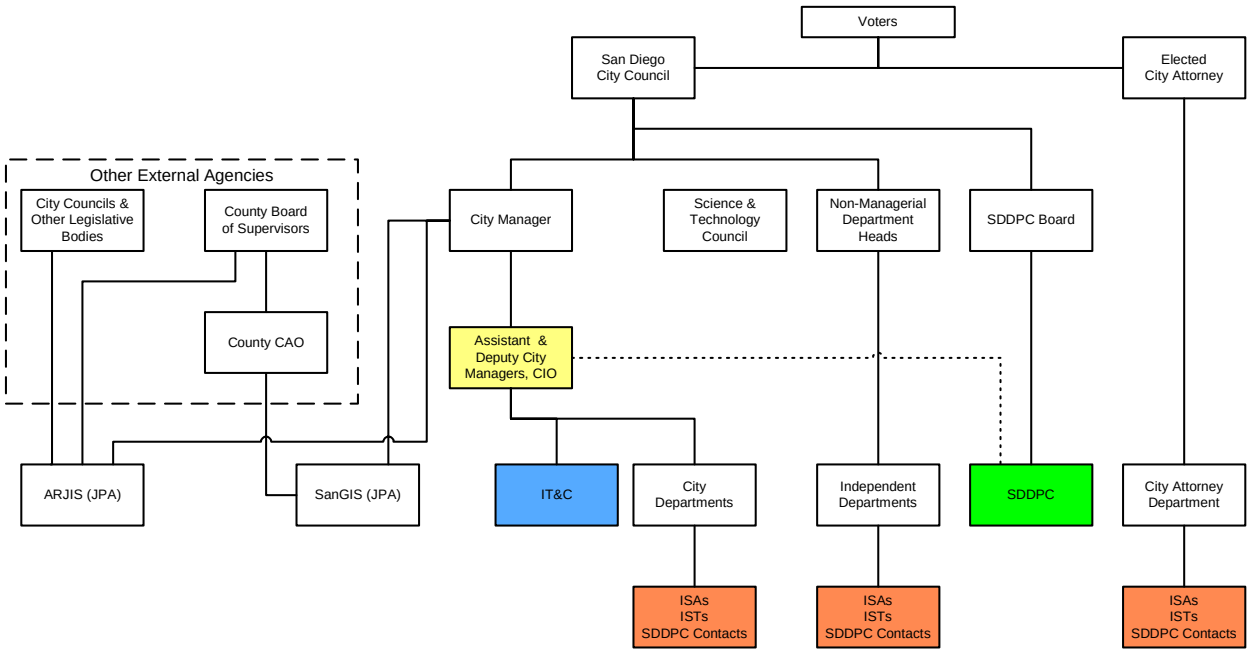


Figure 8. Overview of Current Organizations Involved in IT Services in the City of San Diego

SanGIS was created in July 1997, as a JPA between the City and County of San Diego, to formalize their partnership in GIS. Access to correct and current geographic data was considered more important than application development to County and City departments; therefore, SanGIS focuses on ensuring that geographic data is maintained and accessible. The SanGIS mission is "to maintain and promote the use of regional geographic data warehouse for the San Diego area and to facilitate the development of shared geographic data and automated systems which use that data." The SanGIS goals are to: "(1) ensure geographic data currency and integrity, (2) provide cost effective access to geographic data to member agencies,

subscribers and the public, and (3) generate revenue from the sale of geographic data products to reduce the cost of map maintenance to member agencies."

Similarly, ARJIS was created in 1981, as a JPA among 40 regional law enforcement agencies, creating a complex enterprise network of automated systems. ARJIS provides its member agencies with regional information on crime cases, arrests, citations, field interviews, traffic accidents, fraudulent documents, and stolen property. Also available through the ARJIS secure Intranet, are regional photographs (ie., mug shots), photos from neighboring counties, and the California Department of Justice (DOJ), with access to Cal-Gang, regional mapping, and crime statistics.

6.2.2 Limitations of the Current Environment

The Executive Committee and ITGC have identified several issues with the City's IT organizational structure, hiring and retention of IT staff, training and development, service levels and sourcing that inhibit the City's ability to achieve its IT vision. These issues include:

- **IT Organizational Structure and Roles and Responsibilities** – As the City's requirements for information and communications capabilities have grown, roles and responsibilities of the IT service organizations have become more fluid to respond to pressing service delivery needs. This has resulted in unclear delineation of responsibilities in numerous areas, including LAN and software programming support. Roles and responsibilities often overlap, resulting in non-optimized and costly delivery of IT services. In addition, since SDDPC is a wholly-owned independent corporation of the City, the business model that is in place does not take advantage of typical contractual relationships between a third-party service provider and a customer (e.g., with incentives and penalties). For example, the concept of financial penalties with SDDPC is rendered meaningless by the fact that the City would be penalizing itself. This "contractor/owner" (i.e., SDDPC is the contractor, City is the owner) relationship between the City and SDDPC results in SDDPC being treated like a City department rather than a third-party IT service provider, making it difficult for both organizations to establish and enforce meaningful contractual obligations.
- **Hiring and Retention of Staff** – Current hiring processes and policies do not support the City's need to attract and retain the most qualified IT staff. Some departments are experiencing a 'revolving door' syndrome as a result of significant competition for talented IT staff within the City (i.e., IT staff moving to other City departments with more senior level positions). While SDDPC helps the City maintain IT staffing levels due to its ability to hire quickly and provide competitive compensation, both the City and SDDPC are being affected by the "dot-com" economy and are having difficulty recruiting and retaining staff.
- **Skill Levels** - The skills and expertise required for each City IT staff classification are not clearly defined, resulting in varying degrees of staff capabilities within each classification (e.g., some ISAs do budgeting functions while others conduct system analysis). Some departments use non-ISA staff to support their information technology functions resulting in staff being overloaded with a variety of duties. In addition, staff outside of the ISA classification may not be appropriately trained in information technology concepts and principles, which results in delayed or non-optimized services.

- **Training and Development –** The City and SDDPC IT staff do not consistently receive necessary training to ensure their skills remain current with technology advancements. In general, the City IT staff do not have professional development plans or the funding to address current and future technology training needs. This has impacted employee retention and has limited the City's ability to quickly respond to customer needs especially in the area of Web-enablement and other Internet strategies.
- **Service Levels** – In some key areas, SDDPC's service delivery does not currently meet City expectations. However, in general, the City has not established clearly defined performance metrics or accountability mechanisms that provide SDDPC incentives to improve service levels. In many instances, this has resulted in redundant IT service delivery channels and additional costs to the City, e.g., some departments have established their own help desks and LAN support staff.
- **Sourcing** – While some services that are considered non-strategic or commodity-type services have been outsourced through SDDPC (e.g., desktop maintenance), there are other services that have not been optimized through the application of best practices and/or by competing to third-party providers. In a recent strategic planning effort conducted by SDDPC, it was recommended to the SDDPC Board that some of these services be evaluated for sourcing strategies (e.g., data center operations).

6.2.3 Objectives

In order to address the limitations posed by the current IT organization and staffing environment, the City has identified the following objectives:

- **Objective 1**: Improve services provided from SDDPC and by the City, including sourcing options
- **Objective 2:** Clarify IT organizational and staff roles and responsibilities for both City and SDDPC
- **Objective 3:** Improve hiring and retention of qualified City IT staff
- **Objective 4:** Enhance City IT staff skills and expertise
- **Objective 5:** Establish performance metrics to measure the effectiveness of the City and its IT service provider(s) in the delivery and management of IT services

6.2.4 Initiatives

The City will achieve these objectives by implementing the IT organization and staffing initiatives described below. It should be noted that the IT Governance framework, which is described in Section 6.3.4, will be implemented concurrently with these initiatives. Descriptions of roles and responsibilities, together with the activities that will occur in transitioning the IT organization, are provided in Appendix A.

Transition plans will be developed before responsibilities are shifted between the City departments, IT&C, SDDPC and external vendors. These plans will ensure that IT&C and City departments are prepared to take on new roles, that departments are confident that their operational requirements will be met and that IT service delivery will not be disrupted. Timing on

sensitive projects will be considered. The changes in the IT Service Delivery organization fall into two areas.

- **Improving the Existing IT Organization** - Clarify roles and responsibilities, establish City governance process and change the City's relationship with SDDPC to a strategic partnership implementing a customer/provider model
- **Changing SDDPC's Role from Primary IT Service Provider to Broker of IT Services** – As a strategic partner with the City, SDDPC will focus on IT design and architecture, contract management, database management and legacy application support; and in conjunction with the City, look at other options to provide non-strategic service delivery (e.g., data center operations)

The following sections describe the initiatives related to IT Organization and Staffing. More detailed descriptions of these initiatives are included in the Implementation Plan section.

6.2.4.1 Establish a Customer/Provider Business Model with SDDPC

This initiative will augment the City's relationship with SDDPC as a strategic partner to formalize a customer/provider business model. The purpose is to clearly define the business and contractual relationship between the City and SDDPC (i.e., City as customer and SDDPC as IT service provider). Roles and responsibilities of City IT staff and SDDPC staff will be clearly delineated to support this enhanced business model (see chart below for delineation of primary responsibilities). Where appropriate, the Master Operating Agreement and Service Level Agreement between SDDPC and the City will also be modified to: (1) redefine roles and responsibilities, (2) clarify IT service level expectations and performance measures, (3) and delineate IT services acquired through SDDPC. In addition, the City will work with SDDPC to ensure that IT decisions support the City's IT vision of improving services to the public and improving internal City operations and management. Using the new IT governance structure, the City will develop clear performance metrics and accountability mechanisms for IT services delivery from SDDPC and by the City.

City Responsibilities	SDDPC Responsibilities
Establish IT Policy	Implement IT Policy
Approve Standards	Recommend Standards
IT Business Processes/Reengineering	IT Operations
Overall/Business Project Management	Technical Project Management

6.2.4.2 Redefine the City's IT Organization

This initiative will redefine the City's internal IT organization, including the IT organizational structure, staffing levels, IT service sourcing strategy, hiring practices, and staff training and development plans. Also, roles and responsibilities of the City's IT organizational elements (i.e., IT&C, SDDPC, Department IT Staff) will be further detailed and documented.

Specific activities related to this initiative will include the following:

- **Develop a Sourcing Strategy -** A sourcing strategy will be developed that prioritizes service areas for consideration of sourcing alternatives and delineates the strategy for

evaluating those options. This will be a collaborative effort between the City and SDDPC and will include: 1) benchmarking of current IT services (e.g., data center, LAN support, Help Desk); 2) assessment of market opportunities; 3) identification of best practices as well as partnerships; and 4) development of a procurement strategy (e.g., what services to bundle and unbundle?). Also, the sourcing strategy will ensure that employee transition plans are developed and communicated as necessary. It will also ensure that service level agreements are developed that clearly define performance metrics and accountability mechanisms with sourced vendors.

- **Update City Recruitment and Hiring Practices -** Preferred alternatives for hiring qualified City IT professionals will be identified (e.g., new classified positions, unclassified positions, etc.). The CIO and Department IT staff will be involved in the development of hiring practices and the recruitment and interview processes. Hiring efforts will focus on critical skill areas (e.g., project management, contract relationship management, IT lifecycle and principles). A recruitment plan will be developed. IT employee retention strategies will be identified and implemented.
- **Develop Training and Development Plans -** A skills assessment of all City IT staff will be conducted (focused on soft skills and IT skills) to determine skills needed based on the City's long-term business needs. Training and development plans for each City IT employee will then be developed that tie back to the skills assessment. Training and development will be tied to performance reviews and promotion opportunities. Plans for knowledge transfer from City IT employees to vendor and from vendor to City IT employees will also be built into vendor contracts as appropriate.

6.3 IT GOVERNANCE FRAMEWORK

Governance is the institutionalization of a process that guides how individuals and groups cooperate to manage technology. It provides a framework for making IT decisions. The overall objective and role of IT governance is to ensure that the City's IT organizational resources are targeted at and deliver maximum business value.

6.3.1 Overview of the Current Environment

The City does not currently have a formal governance structure, but does have the following governance framework in place:

- **Standards, Policies and Procedures –** The CIO and SDDPC recommend the City's standards, policies and procedures. The CIO, through IT&C, establishes and enforces them.
- **IT Decision-Making and Centralized Management of Citywide Services –**The CIO makes decisions on Citywide infrastructure and services. Departments make decisions regarding Department-specific projects; however, this depends on various conditions including consultation with IT&C and SDDPC. IT&C provides a Citywide perspective when making IT decisions. Sponsoring departments can make unilateral decisions regarding Citywide systems (e.g., OPIS, FMIS, AMRIS).
- **Budgeting, Funding and Spending** – Each department is responsible for developing and recommending its IT budget. The departmental annual IT budgeting effort is coordinated by IT&C. IT&C also establishes a departmental IT budget for funding some

Citywide IT projects, for example projects with enterprise-wide or multiple-department impact (e.g., "A-List" and infrastructure projects). The City Manager takes recommendations from the CIO/IT&C and departments for establishing the City's IT budget. SDDPC establishes its own budget, which is primarily funded by the City through the annual City operating budget.

- **IT Strategic Direction** – The City's IT strategic direction was defined through the IT strategic planning process, led by the CIO. This process included input from internal and external stakeholders including citizens and elected officials. The City established an IT Governance Committee (ITGC) to help address and unify individual departments' IT visions and missions and incorporated them into the City's IT Strategic Plan. A Steering Committee made decisions based on recommendations made by the ITGC. Council approval on the overall City IT Strategic Plan will be solicited.

6.3.2 Limitations of the Current Environment

The Executive Committee and ITGC have identified several issues with the City's IT governance framework that inhibit the City's ability to achieve its IT vision. These issues include:

- **Standards, Policies and Procedures –** The Citywide ability to implement and uphold standards, policies and procedures is inhibited by the City's governance structure of having multiple decision-makers on IT-related initiatives. There is limited Citywide buy-in on application and enforcement of IT standards. There is also a lack of consistent means for enforcement of IT standards, policies and procedures. Further, an enterprise architectural plan focusing on applications, infrastructure, and data has not been developed that will provide a comprehensive guide for establishment of IT standards and policies. These result in unnecessary additional costs and efforts as well the proliferation of a more heterogeneous City IT environment that is more challenging and costly to maintain.
- **IT Decision-Making and Centralized Management of Citywide Services –** There is no single decision-maker on overall City IT directions, which results in limited Citywide efforts and stakeholder buy-in. The CIO makes decisions on Citywide infrastructure and services. Departments make decisions regarding department-specific projects, depending on various conditions including consultation with IT&C and SDDPC. In general, IT&C provides a Citywide perspective for making IT decisions, however, sponsoring departments can make unilateral decisions regarding Citywide systems (e.g., OPIS, FMIS, AMRIS).
- **Budgeting, Funding and Spending** – Sufficient IT funding sources are not available to all City departments, resulting in departments having inconsistent levels of technological tools and capabilities. The annual budgeting process for allocation of departmental and Citywide funds for IT operations and projects, although coordinated, is largely an autonomous activity by each department. Also, there is no current mechanism to coordinate IT resources and initiatives on a Citywide level. In addition, the City does not employ a formal process to manage its applications resources. Collectively, these current issues result in sub-optimized use of City resources and funding.
- **IT Strategic Direction** – The City does not have a formal governance structure to ensure that the City's IT strategic direction is clearly and consistently communicated. Nor does it have the governance processes in place to ensure that the City's strategic

objectives are implemented and results are measured. Without this formal governance structure, it will be extremely difficult for the City to ensure that this Plan is executed successfully to meet the City's business goals and objectives.

6.3.3 Objectives

In order to address the limitations posed by the current IT governance framework, the City has identified the following objectives:

- **Objective 1:** Maximize the City's capabilities for making IT decisions
- **Objective 2:** Improve the planning and monitoring of IT funding and budgeting
- **Objective 3:** Appropriately manage the allocation of IT funding and staff resources
- **Objective 4:** Achieve organization-wide buy-in and support of IT decisions and strategic directions
- **Objective 5:** Consistently apply and enforce IT standards, policies and procedures

6.3.4 Initiative

The City will achieve these objectives by implementing the following governance initiative:

6.3.4.1 Implement a Governance Framework

This initiative will test, modify and implement an IT governance structure for the City. This structure will include an IT Board, IT Governance Committee, Business Case Review Committee, and an IT Technical Advisory Committee. Other related technical committees (e.g., Wireless, e-Government/Internet, GIS) will be utilized as appropriate. In addition, as part of the strategic partnership, the Assistant City Manager will be an *ex-officio* member of the SDDPC Board and the SDDPC CEO/President will be an *ex-officio* member of the City's IT Board. The following diagram depicts how these bodies will relate to each other.

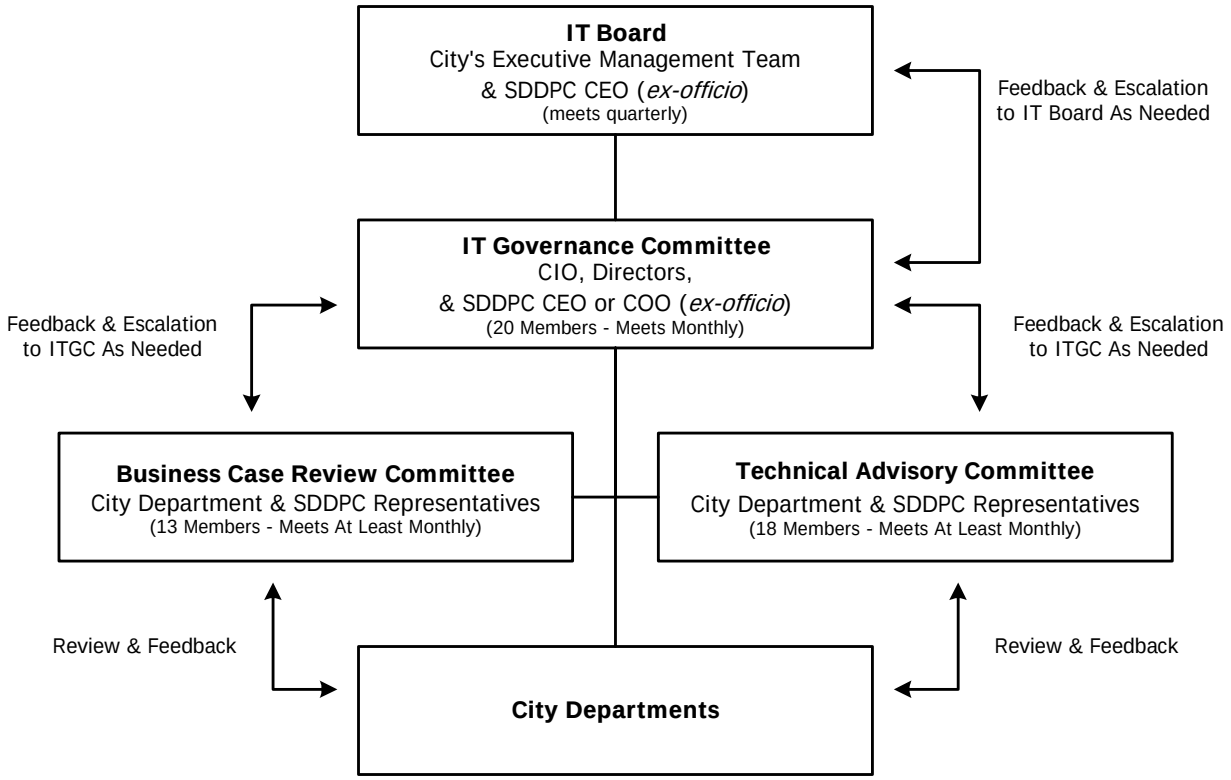


Figure 9. Proposed IT Governance Structure

This structure will be tested on selected projects and then modified before being fully implemented. The governance structure will be assessed annually and modified as necessary. The governance structure will help improve the City's IT decision-making by clearly defining decision-making processes and criteria. It will facilitate the development of a Citywide IT budget and the monitoring of IT budget spending, ensuring all departments have access to a baseline level of technology and that employees receive proper training to remain current with technology trends. It will provide a forum through which the City can explore public-private partnerships to fund and develop IT within the City. The following diagram depicts the factors decision-makers will take into consideration to ensure IT investments help the City accomplish its business objectives.

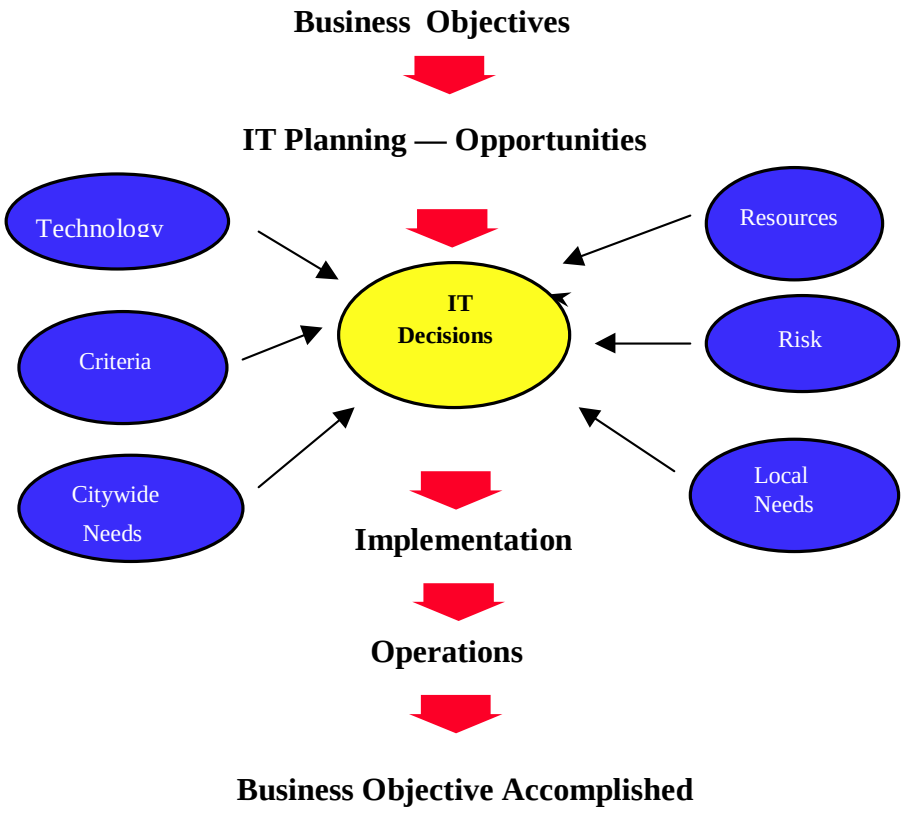


Figure 10. Considerations for IT-Enabled Decision Making

The governance structure will also facilitate communication among business decision-makers regarding the impacts of IT investments and the progress of significant IT system implementation projects. It will ensure IT standards are developed and consistently applied throughout the City, and that there are also fair processes to grant exceptions based on cost benefit analysis. The governance framework will be used to help move decision-makers to a City-centric view to help focus on the customer-centric view desired by citizens and businesses.

6.4 IT PROJECT MANAGEMENT

Project management practices are put into place to ensure IT projects are completed on time, within budget, and most importantly, meet business requirements. Project management practices apply to three critical areas: project planning and development, management, and resource allocation and management.

6.4.1 Overview of the Current Environment

The City has more than 160 IT projects running concurrently at any given time. These projects include Citywide projects and Department-specific projects that vary in size and scope. The City's internal IT staff and SDDPC staff maintain various project management roles on these projects depending on the project, project management skills available, and whether another vendor is responsible for implementing a project.

6.4.1.1 Project Planning and Development

The City uses two tools to help facilitate IT project planning and development: the Business Case Program and SDDPC Project Charter. The Business Case Program, managed by IT&C, ensures the identification of appropriate project funding, realistic definition of project scope, and the consideration and communication of project impacts Citywide. The SDDPC Project Charter articulates the scope of SDDPC IT projects for the City. Each Project Charter ensures that City expectations and business objectives are clearly understood and documented by SDDPC for each IT project.

6.4.1.2 Management

The City has been working with SDDPC to improve the City's project management capabilities. IT&C helps provide a focal point for Citywide projects (e.g., Y2K project manager) that facilitate communication between the City and SDDPC regarding project expectations, key milestones, issues and risk mitigation. Departments provide a liaison with SDDPC to provide this focal point for Department projects. SDDPC has implemented its own Project Management Office and has developed a training plan for its Project Mangers. SDDPC has also developed project management templates that are consistent with industry standards (e.g. Project Management Institute), to ensure consistent application of methodology across projects.

In addition, for key projects that are considered high-risk and/or complex, the City utilizes independent verification and validation (IV&V) services from third-party consultants. IV&V consultants provide high-level project oversight to proactively identify risks and mitigation measures to help facilitate project success.

6.4.1.3 Resource Allocation and Management

The City funds the majority of its Citywide IT projects through SDDPC, which has the ability to quickly approve and initiate projects since it is not required to go through the City's procurement process for approval. Contracts for IT projects are negotiated by SDDPC on behalf of the City, with SDDPC signing the resulting legal contracts between SDDPC and the vendor. SDDPC is also able to leverage its resources and finance projects over an extended period of time (e.g., financing of the telephone system for 9 years).

6.4.2 Limitations of the Current Environment

The Executive Committee and ITGC have identified several issues with the City's IT project management practices that inhibit the City's ability to achieve its IT vision. These issues include:

6.4.2.1 Project Planning and Development

- **Identifying the Best Solution –** A formal process for evaluating information system solution options has not been established. Some departments have embarked on "pilot" or prototype activities that have resulted in additional costs and resources. In addition, there are no formal City processes in place to evaluate options beyond SDDPC, while SDDPC processes are not always followed by City departments. Departments have expressed concerns regarding City and SDDPC expertise to determine best practices and identify optimum system solutions.

- **Project Planning and Sponsorship -** The value of structured IT project planning and executive project sponsorship is not consistently recognized by some City departments. This results in delays in schedule, inappropriate project scope, additional costs, and potentially contributes to project failures. While project governance efforts have been established by SDDPC on certain key projects (e.g., monthly executive steering committee reviews), clearly defined project planning and monitoring processes are limited, including the delineation of project roles and responsibilities.
- **Defining Project Scope and Deliverables -** Project charters are in varying levels of detail. Often, the documents do not provide clearly defined and measurable milestone deliverables and project schedules. While these are articulated in other documents, the benefit of the project charter as a project planning and communications tool is diminished. In addition, the project charters often reflect only SDDPC-specific project activities and do not encompass the entire scope of the City's IT project.
- **Contractual Accountability -** No clear performance measures and accountability processes have been established between SDDPC and the City on IT project management. Often, an SDDPC staff person is assigned to be project manager, but does not have bottom-line accountability for the success of the project nor access to City resources. Also, the SDDPC project manager is often only focused on ensuring SDDPC-specific tasks are completed. In addition, meaningful contract terms (e.g., fixed price versus time and materials) that would allow the City to build clear accountability mechanisms into the SDDPC contract are not clearly established.

6.4.2.2 Management

- **Bottom-Line Accountability -** There is a perception that IT&C and SDDPC are not held accountable for project failures. There is also a perception that when the City abdicates its responsibility for project management, the project fails. There is often confusion among project participants (i.e., SDDPC, Vendors, Departments) about who is the project lead with overall responsibility for project management. On most City IT projects, a bottom line project manager, with accountability for both the program/business and technical objectives of the project, is not assigned. Often, project management is handled through the collective efforts of SDDPC, IT&C, and the City department. In addition, there are no contractual incentives or penalty clauses to motivate SDDPC to stay within budget and schedule. There is a Citywide perception that SDDPC often benefits from project overruns and expansion of scope. This is because SDDPC project payments are time and materials and generally not based on completion and acceptance of deliverables and milestones. This makes it difficult for the City to hold SDDPC accountable for the quality or timeliness of its work.
- **Skills and Expertise -** Project management capabilities vary throughout the organization, leading to the perception that successful projects are due to specific individuals, not to the consistent application of project management methodologies by SDDPC or the City.
- **Best Practices -** Project Management best practices are not consistently applied to ensure projects remain within scope, budget, and address business requirements. For example, some projects do not have clearly defined change control processes regarding users and vendors. Some SDDPC contracts with vendors do not tie payment to milestone deliverables or a formalized system acceptance process. Some projects do

not have stakeholder (e.g., users) buy-in at all levels. There is also a perception that there is a lack of coordination by SDDPC and the City, for projects where there could be synergy.

6.4.2.3 Resource Allocation and Management

- **Project Funding and Spending** – City departments do not consistently apply structured processes to identify a funding plan for each project, which includes funding for on-going maintenance costs. Also, there is a perception from some departments that on-going maintenance costs are not always allocated in a fair manner. Ongoing costs for Citywide projects are not being proactively identified for addition to departmental annual operating budgets.
- **Staff Allocation** – Departments are not satisfied with the current policy that directs them to use SDDPC project managers for projects unless the departments complete an extensive justification process. There is also a perception that in some cases, there are too many SDDPC staff assigned to IT projects without the approval of the City. In addition, when SDDPC acts as project manager, it does not have control over City resources assigned to projects, making it more difficult to manage and coordinate project resources.

6.4.3 Objectives

In order to address the limitations posed by the current IT project management framework, the City has identified the following objectives:

- **Objective 1**: Enhance City capabilities to assume bottom line accountability on IT projects
- **Objective 2**: Reduce IT project cost and schedule overruns
- **Objective 3:** Establish structured approach to help ensure successful IT projects

6.4.4 Initiative

The City will achieve these objectives by implementing the following project management initiative:

6.4.4.1 Develop a City Program Management Office

This initiative will develop a City Program Management Office (PMO) responsible for building the project management capabilities (other than technical) of City IT staff and for working cooperatively with SDDPC in their role providing technical project management. This will enable the City to appropriately staff IT projects and take bottom-line accountability for the overall success of both the program and technical aspects of IT projects. The City PMO will be responsible for working with SDDPC in selecting appropriate project management methodologies that will be standardized for all City IT projects. The City PMO will develop and provide training for City IT staff, and may be assisted by SDDPC using their existing PM training. A curriculum will be offered internally and/or externally that will help City IT staff learn the standard project management methodologies and improve their project management capabilities. Depending on the nature of the IT project, this Office will also facilitate the sourcing of appropriate project management skills and expertise (e.g., use of third-party project

managers to augment City capabilities). The City PMO will also be responsible for sharing project lessons learned from project successes and failures so that City IT staff can continuously improve their project management skills. In addition, the City PMO will provide project management assistance on department IT projects as necessary to help departments reduce project costs and implementation time frames, and to ensure implemented systems meet business requirements. The success of the City Program Management Office's programs will be measured by the City's ability to increase its IT project success rate (as determined in the project business cases), shorter project completion times, and lower costs of system development and implementation.

The strategic, organizational initiatives will define specific roles and responsibilities for project management between the City and SDDPC (or other external service provider) and will be mutually agreed upon in the Master Operating Agreement and/or Service Level Agreement(s).

7. CURRENT IT TECHNICAL ENVIRONMENT

7.1 OVERVIEW

The City has made significant investments in its information technology and communications applications and infrastructure. For example, in 1991, a multi-million dollar wireless communications system was implemented to support public safety and general government needs. The City was the first agency in the region to implement state-of-the art public safety and 9-1-1 applications, including integrated Automatic Vehicle Location (AVL) and Global Positioning System (GPS). The Library was also one of the first libraries to provide online access to book catalogs and desktop computers to its patrons. The Water Department as well as Environmental Services Department each has state-of-the-art geographic information system (GIS) applications providing operations and management staff with updated location-based information (e.g., water and sewer systems, trash collection routing). The Metropolitan Wastewater Department has advanced distributed control systems to manage operations of the treatment plant. Also, other public sector agencies look to the City for guidance on implementation of budgeting systems – the Financial Management Department deployed a new budget system in early 1998. Also in 1998, the Purchasing Department implemented a new GUI-based system.

While the City has made significant progress in some key IT areas, an article published in Governing Magazine on government performance rated the City with a "C" in information technology. Specifically, the key technical areas cited as needing improvements include:

- Information systems that support management decision making and strategic goals especially in the areas of financial management, human resources, capital management, and managing for results
- A coherent architecture for information technology.

This section provides an overview of the City's current technical environment, its limitations, and the objectives and initiatives identified to meet the City's strategic business goals and objectives.

7.1.1 Overview of the Current Environment

7.1.1.1 Applications Environment

The City has over 130 key application systems. Of these, seven are considered Citywide applications that support the core business process needs of the organization. Other applications are shared or used by multiple departments. The rest of the City's applications are autonomous, standalone applications dedicated to department-specific processes. Some of these individual applications perform similar support, service or operational functions (e.g., work order management).

Efforts are underway to replace aging information systems and provide for more user-friendly interfaces utilizing GUI (e.g., Windows, Web) standards. These include current initiatives by the Treasurer's Office, Metropolitan Wastewater Department, Police Department, and Risk Management Department. Some of these initiatives provide for more robust decision support systems and streamlined business processes. Others utilize state-of-the-art technologies for wireless, GIS, and Web-enabled applications.

The following lists applications that could be considered as supporting Citywide processes.

- OPIS — Online Purchasing Information System - client/server application implemented in 1998 hosted on IBM/AIX server
- CAPPS — City Automated Payroll Processing System - mainframe-based application implemented in early 1990s.
- FMIS — Financial Management Information System - client/server application implemented in 1998 hosted on IBM/AIX server. Enhancements to the this system are planned.
- AMRIS — General Ledger, Accounting, and Financial Reporting Systems - mainframe-based application implemented in late 1970s.
- ARIS — Accounts Receivable Information System – mainframe-based application implemented in late 1970s. There is an ongoing initiative to replace ARIS with a new Centralized Accounts Receivable Tracking System (CARTS).
- FAMIS — Fixed Asset Management Information System - mainframe-based application implemented in late 1970s.
- SanGIS — San Diego Geographic Information Source – GIS system and data repository on client/server platform implemented in the late 1980s – continuously refreshed with new applications

The majority of department-specific applications and Citywide core applications are developed and supported by SDDPC. The remaining applications are commercial off-the-shelf (COTS) software products. The City has implemented “best-of-breed” COTS applications (e.g., OPIS, FMIS) to meet core business operations needs. Some COTS packages have been significantly customized. Most COTS packages are supported by third-party vendors, with SDDPC providing systems integration and contract management services.

Current applications operate on a wide variety of technical platforms. These platforms are summarized in the table below.

Mainframe	
Operating System	OS/390, MVS
Client	Terminal emulation
Database Management System	IMS, DB2
2 & 3 Tier Client Server	
Operating System	Windows NT 4.0 & 2000, Sun Solaris (Unix), IBM AIX (Unix)
Client	Windows NT x.x, Windows 95, 98,
Database Management System	Oracle (Various used), SQL Server, Ingres

N Tier Client Server/Thin Client Server (i.e., for Intranet or Internet use)	
Operating System	Windows NT 4.0 & 2000, Sun Solaris (Unix)
Client	Netscape Browser City Standard Windows NT, MS Internet Explorer x.x, Windows 95, 98,
Database Management System	Oracle (Various used)

7.1.1.2 Server Environment

The City has standardized on Novell NetWare servers for file and print services. The Fire Department and Police Department have standardized on Microsoft NT servers. Novell NetWare servers support the City's GroupWise e-mail system. There are also Microsoft Exchange servers supporting the Fire and Police Departments. The City's trend is toward consolidation of the GroupWise servers. There are a mixture of NetWare, WinNT, and Unix servers deployed as application servers.

The City has two IBM mainframes supporting mostly departmental and some Citywide applications. The S/390 Sysplex is used to support the City's core applications and is currently running at 50% utilization. The IBM 9121-190 supports the City's traffic ticket system and was developed and is currently maintained by the City of Inglewood.

A large number of application and database servers located at the SDDPC data center. Web servers are also located at SDDPC running Sun Solaris on SPARC servers. Novell print and file servers are distributed throughout the City and there are application/database servers distributed at City departments. Netscape Enterprise Server is the software standard for Web hosting. However, some departments use other Web servers, e.g., MWWD, Fire and Police all use Microsoft Internet Information Server (IIS).

7.1.1.3 Desktop Environment

There are an estimated 7,800 plus desktop computers in the City. Most prevalent are desktops using Win95, Win98, or WinNT 4.0 operating systems. Small pockets of MS-DOS, Win3.11, Win2000 Professional, Mac O/S, OS/2, and Sun O/S desktops also exist. Novell NetWare Client and Client for Microsoft networks are used as standard network client software.

Netscape Navigator is the standard Web browser. Some Microsoft Internet Explorer (IE) browsers are installed on desktop systems but the extent has not been confirmed, although departments have indicated that Microsoft IE is located on most of their desktops.

Though some departments have desktop backup policies, there is no known Citywide desktop backup policy in place. There is also no standard desktop image nor is there a desktop refresh strategy in place. Some departmental Virtual Private Networking (VPN) has been implemented in small numbers while Dynamic Host Configuration Protocol (DHCP) is partially implemented.

7.1.1.4 Applications Development Environment

A wide range of application tools is used to support the City's application environment. COBOL is still predominantly used as the programming language for legacy mainframe applications. PowerBuilder and Oracle have been the standard application developer tools for client/server

business applications. SAP ABAP/4 is used to support SAP product development. Java and Oracle have been identified as the City standard for Web application development.

7.1.1.5 Application Integration Environment

Middleware is used on a limited basis to integrate key applications, (e.g., the Police Department's Criminal Records Management System (CRMS) and the Automated Regional Justice Information System (ARJIS) for data transfer.) MQ-Series is the primary middleware software used to support transaction and data exchange needs between systems. System interfaces between application systems are generally custom-developed for each application. For example, several current and new application systems require data exchange with the AMRIS system. For each of these current or new application systems, a specific interface has been custom-developed.

7.1.1.6 Database Environment

The City's use of databases can be categorized into three key application areas: Citywide, departmental, and desktop. Many Citywide legacy applications are operated on the IBM mainframe and use the IMS database. DB2 is also utilized on the mainframe but IMS has predominantly been used for mainframe-based applications. Recently deployed enterprise-wide applications use Oracle.

Oracle is the standard database management system (DBMS) for Citywide and departmental applications. Other database products used on a departmental basis are Ingres, SQL Server, and MS Access. Desktop applications use a variety of DBMS such as Paradox and MS Access.

7.1.1.7 Wide Area Network (WAN) Environment

The San Diego Network (SANNET) provides Wide Area Network (WAN) and Local Area Network (LAN) connectivity to City departments. In general, the WAN provides high-speed access from various City locations. It is supported by an ATM backbone with services provided by AT&T. Pacific Bell provides high-speed T-1 service to a large number of City facilities. SDDPC monitors WAN performance and coordinates with AT&T and Pacific Bell. Other agencies or consortia in San Diego County, e.g., the Automated Regional Justice Information System (ARJIS) also use SANNET for connectivity.

There is an increasing demand by employees for mobility and access to information from the field. For example, public safety, utility, and public works staff desire access to City systems from remote locations. Efforts are underway to enable secure remote access to the City network using commercial cable modems or DSL.

7.1.1.8 LAN Environment

Large City departments currently utilize 10/100mb switching to desktops while outlying departments often use shared 10/100 LAN connections. Some shared LAN bandwidth services to desktops in the outlying areas use older hub technology. Most City users have switched services to the desktop.

7.1.1.9 Voice Network Environment

The voice system utilizes NEC PBX switches located throughout the City. The system is currently maintained by NEC under a maintenance agreement with SDDPC. SDDPC owns the telephone system equipment. There are approximately 34 NEC PBXs, 10,000 plus telephones, and 7,000 plus voice mail accounts supporting the City's voice communications needs. A plan to upgrade the PBX switches has been completed. Opportunities for consolidating the City's voice and data communications infrastructure (i.e., Voice over IP (VoIP)) as well as use of centralized faxing capabilities are being discussed between SDDPC and the City. Many City locations utilize non-PBX systems to support their business requirements (e.g.,. Park and Recreation).

7.1.1.10 Wireless Voice and Data Communications Environment

The City uses both private and commercial wireless communications infrastructure. Its private infrastructure is primarily used for emergency-related services. The City is responsible for installation and maintenance of its wireless communications systems and equipment. Commercial cellular vendors provide services for voice and data (e.g., cellular digital packet data – CDPD). Key communications systems include:

- 800 MHz Voice Radio (approximately 9,000 users)
- 800 MHz Mobile Data / AVL system (approximately 850 units)
- Paging system - both commercial and City-owned
- Fire Department wireless access to CAD system via Palm VII.

Efforts are underway to determine options for augmenting the City's wireless data capabilities. Both the Fire and Police Departments have reported concerns regarding capacity to support their current and future business needs. The Police Department is currently piloting use of CDPD to address its growing needs. MWWD is evaluating use of Ricochet for wireless data applications.

7.1.1.11 Systems Management Environment

SDDPC has automated tools in place to manage and monitor the performance of the WAN and LAN infrastructure. Currently the following tools are being used:

- Spectrum: a network management tool used primarily for network problem notification and fault isolation. Spectrum is also configured to send alarms and alerts when specific faults or conditions occur.
- Net-health: primarily gathers network management information and automatically generates Web based reports to gauge the health and performance of the network
- Distributed "sniffers" which gather detailed network packet information for performance monitoring and trouble resolution
- CiscoWorks2000: a the dedicated network tool used to support the management of all Cisco devices
- 3DV: gathers statistical information on all network routers and provides graphical reports.

There are different desktop management tools used by some individual departments. No tool has been implemented on a Citywide basis to manage desktops across LANs. There is no

policy or framework to handle network management from the computer device to the network jack on the wall. There is no single help desk implemented Citywide.

7.1.1.12 Information Security Environment

SDDPC security policies and procedures have been developed but not adopted at a Citywide level. The City has security-related policies in the Administrative Regulations (ARs) pertaining to electronic mail and Internet/Web usage. SDDPC maintains information technology network security for some applications and servers. Other security functions are performed by some larger departments, including:

- Utilization of internal firewalls.
- Router configuration for packet filtering and stateful inspection
- Network design-using DMZ for Internet protection.

Some policies are in place for management of user accounts, however, they are not consistently applied and enforced. SDDPC defines systems administration security privileges for Citywide servers. Larger City departments manage their own servers and system security needs. Access to the City network is controlled using SSL server.

7.1.1.13 GroupWare Environment

The City has standardized on GroupWise for calendaring, internal/Internet e-mail, and group scheduling. There are approximately 5,700 GroupWise user accounts. Some departments such as Fire and Police have standardized on Microsoft Exchange to support specific needs by key applications. Other departments still use the e-mail system on the IBM mainframe. The City currently has no established standards on workflow products.

7.1.1.14 Personal Productivity Software Environment

The City uses both Corel Suite (there is also extensive use of Lotus 1-2-3) and Microsoft Office Suite to support its business processes. Plans are underway to migrate from Corel Suite to Microsoft Office Suite during 2001. The current City Web browser standard is Netscape Navigator. City Web-based applications must support Netscape Navigator and Microsoft Internet Explorer.

7.1.1.15 Document Management Environment

Some departments have implemented or are in the process of implementing document management systems. Most of these systems are focused on storage and retrieval of paper images. The following lists departments using document management:

- City Clerks Office – uses Documentum to maintain official City records
- MWWD - uses Documentum
- Police Department – integrates FileNet with its criminal records management system
- Water Department - has incorporated a new document management system called cImage. This has been implemented through its records management system initiative.

- Engineering & Capital Projects, Water and MWWD all use a document management system based on Documentum to manage Computer Aided Design and Drafting (CADD) documents.

7.1.2 Limitations of the Current Environment

The following summarizes issues in the current technical environment, which would limit the City's ability to achieve its IT vision and strategic goals and objectives:

- **Management Decision Support** – Several independent systems provide information to facilitate decision making, however, these systems have limited trend analysis capabilities and lack integrated access to real-time information. This limits management's ability to quickly obtain key information and contributes to additional resource drain, impacting staff time and turnaround time for decisions.
- **Knowledge and Document Management -** A formalized knowledge management process has not been established. Currently there are no standards for the archival and retrieval of records and other information. In addition, some record archival and retrieval practices do not meet some State and Federal mandated requirements. As the City embraces the concept of providing electronic services to its citizens, the capture, processing, and refresh of its intellectual capital will become essential, including storage and archival of records. Citizens will expect City information to be provided quickly via the Internet and other communications channels, making it critical to ensure data integrity.
- **Information Security –** Consistent policies and procedures as well as their enforcement have not been adequately documented and addressed. In addition, security issues pertaining to e-Government have not been fully assessed. As demand for the City's electronic services increases (i.e., from citizens, the business community, and the global community), citizens need to be ensured of the privacy and security of their transactions. In addition, as employees access City information remotely (e.g., homes, mobile locations), the potential for security breach and exposure will increase.
- **Total Cost of Ownership** – The City's technical environment is largely heterogeneous, with various products and technologies in place. For example, some departments have procured and are supporting their own servers and LAN infrastructure. Help desk functions have been decentralized. Multiple e-mail and database systems are used. While this has helped address short-term departmental and Citywide needs, it has resulted in more staff resources to maintain and support the City's technical environment. The City's ability to leverage technical resources has also been limited.
- **Maintenance and Support Resources** – Also, as a result of the City's heterogeneous technical environment, technical staff resources have specialized in key technology areas. In some cases, resources have been difficult to source especially for support of legacy, mainframe-based systems. This issue is compounded by the City's complex applications environment where custom-developed software has largely been used to exchange data and transactions between the City's application systems (e.g., FMIS and AMRIS interface, OPIS and AMRIS interface, etc.).
- **Technical Infrastructure** – While some IT standards are in place, a coherent architecture has not been developed. In part, this has resulted in the City's heterogeneous technical environment and has limited City departments in making

decisions consistent with an overall Citywide strategy. With the City's vision of providing a "single face to government" to its citizens and the business community, an overall technical framework for applications, data, and infrastructure is critical. In addition, the City's current infrastructure and capacity is limited in supporting its vision for providing services through electronic channels.

- **Baseline Technology Capabilities –** There are varying levels of automation capabilities throughout the City. Specifically, personal productivity tools such as desktops, e-mail, word processing software, and others are not consistently available to all departments. Those departments with adequate funding sources for information technology provide their employees with appropriate automation tools, other departments have been unable to bring their computing capabilities to an acceptable standard. This impacts employee productivity and effectiveness, which potentially results in delayed services or inefficient operations.
- **Citywide Communications and Collaboration** – The City recognizes the importance of facilitating internal and external communications and group collaboration. Efforts are underway to address capacity and performance issues on the current wired and wireless communications infrastructures. Many departments that have recognized the value of IT to help achieve their business goals have embarked or are embarking on technology improvement initiatives. However, a Citywide effort for evaluating enhanced group collaboration and communications needs has not been established. As the City embarks on meeting one of the Mayor's goals for a "*City of Villages*" (based on the Mayor's top-ten goals), a more robust and integrated communications infrastructure will be a key factor.

7.1.3 Objectives

In order to address the limitations of the current technical environment, the following objectives were identified:

- **Objective 1:** Improve internal and external communications infrastructure capabilities
- **Objective 2:** Ensure security and privacy of electronic transactions
- **Objective 3:** Enhance transaction services provided through the City's Web site
- **Objective 4:** Enhance electronic commerce capabilities
- **Objective 5:** Improve access to Citywide information to facilitate management decision making
- **Objective 6:** Streamline internal business and operational support functions
- **Objective 7:** Enhance ability to respond to service requests
- **Objective 8:** Maximize employee productivity and effectiveness
- **Objective 9:** Minimize total IT cost of ownership

7.1.4 Initiatives

The following current and new initiatives will help in achieving the City's objectives above. More detailed descriptions of these initiatives are included in the Implementation Plan section.

7.1.4.1 Implement Electronic Bill Presentment & Payment (EBPP)

This project is one of the initiatives under the City's e-Government program to deliver online services to the citizens of San Diego. The project will provide customers the ability to make payments to the City via the Internet. A vendor has been selected and rollout for water bill payments is expected to occur by September 2001.

7.1.4.2 Implement Treasurer Tax Collection System (TTCS)

This project involves development of a replacement business tax system that will provide a foundation to serve the current and future needs of the Treasurer's Office and its customers. The system is being developed to take advantage of Web-enabled technology, and will replace an existing legacy system called BTAX. TTCS is anticipated to be implemented by September 2001.

7.1.4.3 Implement Online Permitting for Basic Permits - Development Services

The system provides the capability for citizens to apply and pay for simple permits that do not require plans via the Internet. The system will have a manual interface to the existing legacy permitting system for a brief interim period and ultimately be fully integrated with the new Project Tracking System. Development and initial implementation occurred in July 2001 with full production to occur in August 2001.

7.1.4.4 Implement Web-Based Operations Reporting System (E-DORS) - MWWD

Provide comprehensive collection, consolidation and reporting of facility data for the Metropolitan Wastewater Department's Operations & Maintenance Division through a single database and Web front end. The system will interface with the Distributed Control System (DCS), Laboratory Information Management Systems (LIMS) and Enterprise Maintenance Management and Control (E-MPAC) system, and replace several existing independent desktop systems. Estimated completion date is May 2002.

7.1.4.5 Pilot Portal Technology

SDDPC conducted a pilot to investigate portal technology, focusing initially on potential applications for the City's Intranet. The project evaluated the maturity of the technology, software flexibility & capabilities, security architecture, and high-level infrastructure requirements. The technology will be used to provide a personalized virtual desktop that serves as an integration point for various applications. Completion date for the pilot was April 2001. This project will continue with implementation of the portal technology on a broader scale for the City's Intranet during the first half of FY2002.

7.1.4.6 Evaluate Work Flow and Digital Routing for 1472 Process

One of the consistent inputs received from City stakeholders during the IT strategic planning sessions is the need for automation of the City's 1472 process, which involves review and approval processes for City Council agenda items. A workgroup was convened to evaluate opportunities for process improvement and develop a strategy. The team is currently reviewing the data collected and will be making a recommendation on the scope of the effort, which will include interim process improvements, by September 2001.

7.1.4.7 Implement Project Tracking System - Development Services

The new Project Tracking System will provide the capability to process projects for a wide variety of land use, planning, engineering, and building permits. The system, which provides functionality for customer and project tracking, project management, fee assessment, project review and approval, and inspection request and status, will be implemented in phases during 2001. Two major legacy mainframe systems (DMS and BPIS) will be replaced and several stand-alone desktop applications will be consolidated as part of the effort. Implementation of the first production phase was completed in June 2001 and full implementation will be completed by December 2001.

7.1.4.8 Implement Injury Tracking and Safety System (ITSS) – Risk Management

The Risk Management Department recently completed review of its business processes pertaining to Worker's Compensation, Injury Tracking, and Liability programs. Opportunities for improvement have been defined, and an automated solution to help facilitate these improvements is being procured. Selection of a vendor will be completed by October 2001, and implementation completed within approximately 12 months.

7.1.4.9 Implement Ad hoc Reporting & Intranet/Internet Access to Budget System – Financial Management

This project involves Web development efforts to enable internal Citywide access to budget information on the City Intranet as well as on the Internet for public access. The project also involves modifying the Financial Management Information System (FMIS) application to include Web-enabled end-user data capture and retrieval screens to increase system performance. The project is expected to be completed by July 2002.

7.1.4.10 Implement Centralized Accounts Receivable Tracking System (CARTS) - Treasurer

This project will centralize accounts receivable information for several City billing systems within a single integrated solution. A centralized database will be able to support real-time information for access by internal staff and City customers, improve account management by applying consistent Citywide policies, and provide opportunities for streamlining payment processing. The system would also replace the existing legacy Citywide accounts receivable system (ARIS). The project is expected to complete requirements development during FY2002.

7.1.4.11 Upgrade Computer Aided Dispatch (CAD) System - Police

The existing Computer Aided Dispatch System will be upgraded to a new system capable of handling an increased volume of calls with a faster system response time. The project will include installation of 2 new servers as well as upgrades to the PRC software. Implementation will be completed by April 2002.

7.1.4.12 Implement Criminal Records Management System (CRMS) - Police

This online records management system will enhance the Department's capabilities for data collection, retrieval, and analysis of criminal records. It will also streamline operations by minimizing redundant data capture/entry. Crime-related reports that are written by officers will be captured electronically, which could provide input to local and regional public safety and justice agencies' systems. Final product delivery is expected in December 2001 with a phased rollout of the system to be completed over the following 12 to 15 months.

7.1.4.13 Implement Service Request/Work Management System (SYNERGY Project) Phase V Enhancements – Transportation/Street Division

The Synergy Project tracks work, customers, employees and historical maintenance information for all Street Division assets in both text and graphical formats. Phase V of the project will provide a customer interface via the Internet, Intranet-based access for other Publics Works users within the City, mobile access to display and collect data in the field and automatic location tracking of work activities using GPS. This phase is expected to complete by December 2001.

7.1.4.14 Implement COMNET Distributed Control System - MWWD

The Computerized Operations Management Network (COMNET) will integrate the monitoring and control of all the treatment, storage, metering, and pumping facilities in the Metropolitan Wastewater Department (MWWD) sewage system. The major portion of COMNET will be completed with the completion of the South Bay Water Reclamation Plant and several Point Loma projects during Fiscal Years 2002 and 2003.

7.1.4.15 Implement Integrated Maintenance Management, Customer Information & Installation Order Systems – PISCES (Water)

The Water Department is moving forward with efforts to evaluate long-term options for replacing legacy work request/facility management (SWIM), customer information (CIS) and installation request systems (IOS) with an integrated solution. Initial efforts are focused on short-term modifications to the SWIM (Sewer/Water Infrastructure Management) system needed to improve business and cost effectiveness. Modifications are also being made to the Customer Information System (CIS) to support electronic bill Presentment and payment via the Internet by September 2001. The next phase of the project will include evaluation of potential replacement systems for SWIM. The tentative schedule would replace SWIM by June 2003; CIS/IOS by July 2004.

7.1.4.16 Migrate From Corel to MS Office Desktop Suite

Planning efforts are underway to migrate from Corel Suite to the Microsoft Office Suite. Personal productivity tools that will become City standard are MS Word, MS Excel, MS PowerPoint and MS Access. The migration efforts will include conversion of key document templates and some data. The business case is expected to be completed by October 2001. The actual migration is expected to start during the first quarter of Calendar Year 2002 and be completed within approximately 12 months.

7.1.4.17 Assess Information Security Infrastructure and Develop Enhancement Strategies

SDDPC will conduct an annual information security audit, which will focus on the data center, major servers, the network (routers & firewalls), selected applications planned for implementation over the Intranet/Internet, and information security policies and procedures. This initial audit will be completed by August 2001. Further assessment(s) will be conducted during FY2002 based on the results from the initial audit, and may include network penetration testing and security audits of other City systems.

7.1.4.18 Evaluate Wireless Data Infrastructure Requirements

The City recently established a Wireless Technology Committee with representation from a cross-section of City departments. The Committee will refine a previous list of departmental and Citywide wireless data and applications requirements. In addition, the Committee is currently exploring wireless voice and data technologies. Short-term measures such as use of CDPD are also being explored to address current operational and capacity issues. Refinement of the City's wireless data requirements is was completed in June 2001. The process for evaluation of wireless technology options is dependent on new FCC specifications for mobile data bandwidth/frequencies, which is expected to be released in July 2002.

7.1.4.19 Expand City's Private Paging Infrastructure

Preliminary review has been completed to determine the overall efforts to upgrade the current electronic paging network infrastructure. Some public safety applications depend on this infrastructure. This initiative will include development of an implementation plan for expansion of the paging infrastructure to provide better, more reliable services.

7.1.4.20 Improve Computing Infrastructure

Some efforts are underway in various departments to improve LAN connectivity and performance to achieve more efficient communications, data exchange, and information systems access. The scope of this initiative includes an assessment LAN improvement needs, and development of a more detailed enterprise-wide implementation plan. It also includes evaluation of options (by the City) and implementation of server and storage consolidation opportunities to minimize the City's total cost of ownership (TCO). SDDPC has developed a potential solution using Storage Area Network (SAN) technologies, which the City will review prior to approving its adoption Citywide.

7.1.4.21 Develop Enterprise Architecture Plan

This initiative will address the following architectural domains: Application Architecture, Data Architecture and Infrastructure Architecture. An enterprise architecture serves as a decision support tool to continuous IT planning, management, and development processes, and improves communication between the IT organizations and business units.

7.1.4.22 Develop and Establish an Applications Portfolio

An applications portfolio will assist the City in determining current and future allocation of applications resources. The scope of this initiative includes a comprehensive review of the City's current and planned business applications. Based on this review, applications would be categorized as core, enhancement, or frontier. In addition, applications that are candidates for enhancement and retirement will be identified.

7.1.4.23 Plan for Public Safety Voice and Data System Upgrade

The City's public safety communications system was implemented in 1991. Some efforts are underway to address current operational issues, e.g., transmission of police reports using cellular digital packet data (CDPD) commercial services and replacement of aging mobile devices. This initiative will address the development of an overall strategy for replacement or upgrade of the current infrastructure, including replacement of mobile data terminals (MDTs).

7.1.4.24 Evaluate Options to Replace AMRIS

The Accounting and Management Resource Information System (AMRIS) provides financial information to assist the Auditor and Comptroller in accomplishing the Charter mandate to oversee and report on the City's financial operations, including preparation of the Comprehensive Annual Financial Report. As the backbone of the City's financial information systems, AMRIS exchanges information with more than 24 other departmental and Citywide systems. This initiative will assess options for replacement of AMRIS, including the potential for an integrated financial system that encompasses budgeting, accounting, and decision support systems.

7.1.4.25 Determine Customer Relationship Management (CRM) Requirements

This initiative is to identify requirements that support the City's vision for a service delivery model that is citizen-centric, and provides a "single face" to government. A CRM could capture historical information on all services provided by the City to its customers. This would allow the City to analyze trends and proactively identify key service areas to address. It could also potentially allow customers to "query" what services are being provided to their district and others.

7.1.4.26 Expand e-Government Planning Efforts

The City has identified the need for streamlining its business processes through providing electronic service delivery channels and a "single face" to City government. Based on this, several "quick win" projects are underway to enhance the City's electronic service delivery capabilities. This initiative will include refinement of the City's e-Government framework and strategies and an assessment of the City's overall readiness from three perspectives: organization, customer, and technology.

7.1.4.27 Establish Plan for Citywide Integrated Document Management Approach

Some City departments have embarked on implementation of document management systems. Other departments, such as City Clerk, have been using document management technology. This initiative will provide a Citywide strategy for integrated document management

7.1.4.28 Develop Plan for Integrated Work Order, Service Request, and Maintenance Management Systems

The City currently has five maintenance management systems (i.e., MWWD, Water, Transportation, Facilities Maintenance, and Environmental Services). Some efforts are underway to enhance these systems. This initiative will establish a plan for an integrated solution that could support the needs of the City, and in particular support the City's electronic service delivery model.

7.1.4.29 Implement Case Management System

This initiative will enable the City to implement a case management system for the Criminal Division to support the prosecution of misdemeanor criminal cases within the City of San Diego. The new system will be based upon business best practices and proven IT standards. The application will support the business operation, improve staff efficiencies, provide executive

information for management and legislators, and enable the exchange of criminal information with business partners.

7.1.4.30 Implement IT Asset Management System

The City recently completed an assessment of its IT Asset Management practices. This assessment indicated that there are potential cost savings opportunities with the implementation of a more robust system. This initiative will enable the City to maintain information on the City's information technology assets, which would result in more cost-effective maintenance and support, as well as economies in software licensing arrangements.

7.1.4.31 Implement Enterprise Portal Strategies

Enterprise portals provide Web-enabled capabilities for search engines, directory services, and personalization. A portal would enable the City to show a more unified, easy to use City Web page. In conjunction with the overall e-Government initiative, this initiative will implement the City's enterprise portal (including potential public/private partnerships and systems integration requirements) that would serve as a single "door" to City services.

7.1.4.32 Expand the City's GIS Data Resources

The City in partnership with the San Diego Geographic Information Source (SanGIS) consortium has developed an extensive set of GIS data resources. This includes a base map layer that includes geographic data attributes such as road types, hundred blocks, directional, and others. In addition, other layers such as council districts and police beats have also been developed. Although ongoing efforts are underway in various departments to expand the City's GIS data resources, this initiative will formalize those processes to provide a unified and coordinated approach to expanding the City's geographic data warehouse.

7.1.4.33 Enhance the City's GIS Base Map

The current GIS Base Map used by the City is published to an average accuracy of 10 feet. The proposed project would increase this accuracy to the order of +/- 0.5 foot. In addition, boundary conflicts existing in current land records would be identified and corrected under the guidance of a professional land surveyor. The resulting digital product would enable production of maps to meet the National Map Accuracy Standards at scales typically used by the City. The enhanced mapping would also be more effectively and reliably utilized when overlaid with existing aerial photographs and mapping of grades and topography.

7.1.4.34 Implement GPS/AVL for Field Operations

The Wireless Technology Committee was recently established with representation from City departments. The Committee is currently refining wireless data and applications requirements. One of these requirements, is the ability to locate City vehicles or equipment through global positioning technology. This will result in field operations safety as well as facilitate more responsive services. The scope of the initiative is to implement automatic vehicle location equipment, systems, and processes on key City equipment and vehicles.

7.1.4.35 Plan and Implement Integrated Permitting and Licensing Systems

Many City departments are responsible for permitting and licensing functions. These departments use different automation systems to support their respective permitting and licensing functions. This initiative will include implementation of systems and business processes that would improve the City's internal and external permitting and licensing services. It will potentially include augmentation or replacement of existing systems, including providing citizens with access to these services through the City's Web site and other communications channels.

7.1.4.36 Evaluate Options for an Integrated Human Resources and Payroll System

Four key autonomous systems currently support the City's personnel, payroll, training, and benefits. These systems are largely legacy applications, and were custom-developed on mainframe-based platforms using third generation programming languages. This initiative will evaluate the City's current environment pertaining to human resource and payroll functions and will include high-level business process reviews to identify opportunities for streamlining, and determine integrated, automated solutions in support of improved business processes.

7.1.4.37 Establish Minimum Technology Baseline

Some departments have been able to support growing end-user desktop needs. Others have desktops implemented that are not performing optimally. This is largely due to funding constraints in those departments. This initiative will include identifying funding mechanisms to provide for a common, standard set of desktop computing capabilities. These may include personal productivity tools such as word processing and spreadsheet software as well as GIS tools.

7.1.4.38 Upgrade Citywide Group Collaboration

The City currently utilizes Novell GroupWise for e-mail and envisions a transition to Microsoft Outlook within the next two to three years. The transition will allow the City to standardize on a single suite of personal productivity software, which is expected to result in reduced support, maintenance, and licensing costs. The City is in the process of migrating its word processor and spreadsheet software to the Microsoft Office Suite, and some departments have adopted Microsoft Outlook as its internal e-mail tool.

7.1.4.39 Provide Common Set of Secured Remote Access Tools

Remote access, i.e., from non-City facilities, to City systems and information is currently provided to some employees. In addition, remote access tools have been successfully piloted through the employee telecommuting program over the last few years. In addition to telecommuters, there are many City employees who require remote access to City information from non-City facilities (e.g., homes, hotels when traveling). This initiative will include identification of City requirements and implementation of remote access capabilities that are secure and require minimal intervention and support.

7.1.4.40 Evaluate e-Procurement Strategies

An e-procurement solution would further streamline the City's purchasing operations by providing more "self-service" capabilities to departments, e.g., procurement of standard goods and services through catalogs. Other opportunities such as soliciting on-line bids from several

suppliers who can provide the same products would enhance the City's capabilities to purchase at lower costs. This initiative will include evaluation of options for implementation of e-procurement solutions, including the potential for use of ASPs (Application Service Providers).

7.1.4.41 Integrate Internal and External Work Order/Service Request Systems with Maintenance Management Systems

The City currently has five maintenance management systems (i.e., MWWD, Water, Transportation, Facilities Maintenance, and Environmental Services). Some efforts are underway to enhance these individual systems. This initiative is for integration of the work order and service request systems with the City's maintenance systems. This will result in better internal and external service delivery and cost-effectiveness, including the potential for an end-to-end solution that would have linkages to enhance the City's procurement, accounting, and inventory functions.

7.1.4.42 Establish Vision and Strategy for Knowledge Management

In support of the City's overall goal of providing electronic service delivery channels to its citizens, this initiative will establish a plan to formalize the City's knowledge management approach. Many of the initiatives identified as priority #1 and #2 will enable the City to manage its intellectual capital as well as its wealth of information. However, as the City moves towards electronic service delivery, it will become more important to ensure that key information being provided and captured from its citizens and other customers (e.g., other governmental agencies) is kept current, and a process for continuous storage, archival, and refresh of vital information is formalized.

7.1.4.43 Develop Strategy to Enhance Group Collaboration

This initiative will define an overall strategy for enhancing the City's group collaboration capabilities. Some of the group collaboration requirements are addressed by previous, higher priority initiatives such as the development of an integrated document management strategy. Group collaboration requirements generally encompass multiple facets including the following calendaring and scheduling, conferencing, and others.

7.1.4.44 Implement Integrated Asset Management Systems

Several asset management systems exist throughout the City as a result of departmental-specific needs for tracking assets. This initiative includes development of an overall plan for consolidating the City's asset management systems and implementation of an integrated solution. This will result in enhanced accounting and management of the City's assets, decreased operational costs to maintain data, and more cost-effective maintenance and support of asset management systems.

8. IMPLEMENTATION PLAN

8.1 IMPLEMENTATION STRATEGY

The City has established a vision for how information and communications technology would enable the City "*worthy of our affection*." In order to achieve this vision and the strategic IT goals and objectives, the following critical success factors were identified:

- Strong executive sponsorship and support from City Council and City executives on the City's IT Vision and Mission
- Buy-in from City stakeholders including the various City departments
- Commitment of time and resources from the IT Governance Committee
- Funding and staff resource support to execute the Plan
- Ongoing close communications and teamwork throughout the organization
- Strong partnership with SDDPC as our preferred IT Service Provider/Broker
- Phased implementation strategy based on overall City priorities
- Regular progress assessment and communication of the implementation plan objectives
- Annual review process to ensure that the Plan goals and objectives remain consistent with the City's business needs

The next sub-sections describe the current and new initiatives that were identified, as well as a high-level implementation schedule. New initiatives identified during the strategic planning process were prioritized by the ITGC based on several criteria including strategic fit, relative urgency, City readiness, opportunity costs, and others.

8.2 KEY STRATEGIC INITIATIVES: IN-PROGRESS

The City has approximately 160 ongoing IT projects in various stages of development. The following current initiatives support the achievement of the City's strategic IT vision, and goals and objectives.

8.2.1 Implement Electronic Bill Presentment & Payment (EBPP)

Description/Scope: This project is one of the initiatives under the City's e-Government program to deliver online services to the citizens of San Diego. The project will provide customers the ability to make payments to the City via the Internet. A vendor has been selected and rollout for water bill payments is expected to occur by September 2001.

8.2.2 Implement Treasurer Tax Collection System (TTCS)

Description/Scope: This project involves development of a business tax system that will provide a foundation to serve the current and future needs of the Treasurer's Office and its customers. The system is being developed to take advantage of Web-enabled technology, and will replace an existing legacy system called BTAX. TTCS is anticipated to be implemented by September 2001.

8.2.3 Implement Online Permitting for Basic Permits - Development Services

Description/Scope: The system provides the capability for citizens to apply and pay for simple permits that do not require plans via the Internet. The system will have a manual interface to the existing legacy permitting system for a brief interim period and ultimately be fully integrated with the new Project Tracking System. Development and initial implementation occurred in July 2001 with full production to occur in August 2001.

8.2.4 Implement Web-Based Operations Reporting System (E-DORS) - MWWD

Description/Scope: Provide comprehensive collection, consolidation and reporting of facility data for the Metropolitan Wastewater Department's Operations & Maintenance Division through a single database and web front end. The system will interface with the Distributed Control System (DCS), Laboratory Information Management Systems (LIMS) and Enterprise Maintenance Management and Control (EMPAC) system, and replace several existing independent desktop systems. Estimated completion date is May 2002.

8.2.5 Pilot Portal Technology

Description/Scope: SDDPC conducted a pilot to investigate portal technology, focusing initially on potential applications for the City's Intranet. The project evaluated the maturity of the technology, software flexibility & capabilities, security architecture, and high-level infrastructure requirements. The technology will be used to provide a personalized virtual desktop that serves as an integration point for various applications. Completion date for the pilot was April 2001. This project will continue with implementation of the portal technology on a broader scale for the City's Intranet during the first half of FY2002.

8.2.6 Evaluate Work Flow and Digital Routing for 1472 Process

Description/Scope: One of the consistent inputs received from City stakeholders during the IT strategic planning sessions is the need for automation of the City's 1472 process, which involves review and approval processes for City Council agenda items. A workgroup was convened to evaluate opportunities for process improvement and develop a strategy. The team is currently reviewing the data collected and will be making a recommendation on the scope of the effort, which will include interim process improvements, by September 2001.

8.2.7 Implement Project Tracking System - Development Services

Description/Scope: The new Project Tracking System will provide the capability to process projects for a wide variety of land use, planning, engineering, and building permits. The system, which provides functionality for customer and project tracking, project management, fee assessment, project review and approval, and inspection request and status, will be implemented in phases during 2001. Two major legacy mainframe systems (DMS and BPIS) will be replaced and several stand-alone desktop applications will be consolidated as part of the effort. Implementation of the first production phase was completed in June 2001 and full implementation will be completed by December 2001.

8.2.8 Implement Injury Tracking and Safety System (ITSS)

Description/Scope: The Risk Management Department recently completed review of its business processes pertaining to Worker's Compensation, Injury Tracking, and Liability programs. Opportunities for improvement have been defined, and an automated solution to help facilitate these improvements is being procured. Selection of a vendor will be completed by October 2001, and implementation completed within approximately 12 months.

8.2.9 Implement Ad hoc Reporting & Intranet/Internet Access to Budget System (FMIS) – Financial Management

Description/Scope: This project involves Web development efforts to enable internal Citywide access to budget information on the City Intranet, as well as on the Internet for public access. The project also involves modifying the Financial Management Information System (FMIS) application to include Web-enabled end-user data capture and retrieval screens to increase system performance. The project is expected to be completed by July 2002.

8.2.10 Upgrade Computer Aided Dispatch (CAD) System - Police

Description/Scope: The existing Computer Aided Dispatch System will be upgraded to a new system capable of handling an increased volume of calls with a faster system response time. The project will include installation of 2 new servers as well as upgrades to the PRC software. Implementation will be completed by April 2002.

8.2.11 Implement Criminal Records Management System (CRMS) - Police

Description/Scope: This online records management system will enhance the Department's capabilities for data collection, retrieval, and analysis of criminal records. It will also streamline operations by minimizing redundant data capture/entry. Crime-related reports that are written by officers will be captured electronically, which could provide input to local and regional public safety and justice agencies' systems. Final product delivery is expected in December 2001 with a phased rollout of the system to be completed over the following 12 to 15 months.

8.2.12 Implement Service Request/Work Management System (SYNERGY Project) Phase V Enhancements – Transportation/Street Division

Description/Scope: The Synergy Project tracks work, customers, employees and historical maintenance information for all Street Division assets in both text and graphical formats. The system relies on SAP software for the work/maintenance management functions integrated with ESRI's software to provide the GIS capabilities. Phase V of the project will provide a customer interface via the Internet; Intranet-based access for other Publics Works users within the City; mobile access to display and collect data in the field; and automatic location tracking of work activities using GPS. This phase is expected to be completed by December 2001.

8.2.13 Implement COMNET Distributed Control System - MWWD

Description/Scope: The Computerized Operations Management Network (COMNET) will integrate the monitoring and control of all the treatment, storage, metering, and pumping facilities in the Metropolitan Wastewater Department (MWWD) sewage system. The system has

the ability to monitor and control the flows and treatment processes of the MWWD facilities from a central control and information center. More than 200 site locations will ultimately be linked and monitored by the system, with major facilities connected via a fiber optic network. The major portion of COMNET will be completed with the completion of the South Bay Water Reclamation Plant and several Point Loma projects during Fiscal Years 2002 and 2003.

8.2.14 Implement Integrated Maintenance Management, Customer Information & Installation Order Systems – PISCES (Water)

Description/Scope: The Water Department is moving forward with efforts to evaluate long-term options for replacing legacy work request/facility management (SWIM), customer information (CIS) and installation request systems (IOS) with an integrated solution. Initial efforts are focused on short-term modifications to the SWIM (Sewer/Water Infrastructure Management) system needed to improve business operations and cost-effectiveness. Modifications are also being made to the Customer Information System (CIS) to support Electronic Bill Presentment and Payment via the Internet by September 2001. The next phase of the project will include evaluation of potential replacement systems for SWIM. The tentative schedule would replace SWIM by June 2003 and CIS/IOS by July 2004.

8.2.15 Migrate From Corel to MS Office Desktop Suite

Description/Scope: Planning efforts are underway to migrate from Corel Suite to the Microsoft Office Suite. Personal productivity tools that will become City standard are MS Word, MS Excel, MS PowerPoint and MS Access. The migration efforts will include conversion of key document templates and some data. The business case is expected to be completed by October 2001. The actual migration is expected to start during the first quarter of Calendar Year 2002 and be completed within approximately 12 months.

8.2.16 Assess Information Security Infrastructure and Develop Enhancement Strategies

Description/Scope: SDDPC will conduct an annual information security audit, which will focus on the data center, major servers, the network (routers & firewalls), selected applications planned for implementation over the Intranet/Internet, and information security policies and procedures. This initial audit will be completed by August 2001. Further assessment(s) will be conducted during FY2002 based on the results from the initial audit, and may include network penetration testing and security audits of other City systems.

8.2.17 Evaluate Wireless Data Infrastructure Requirements

Description/Scope: The City recently established a Wireless Technology Committee with representation from a cross-section of City departments. The Committee will refine a previous list of departmental and Citywide wireless data and applications requirements. In addition, the Committee is currently exploring wireless voice and data technologies including Automatic Vehicle Location (AVL)/Global Positioning System (GPS), mobile computing, wireless Internet, digital microwave, 700 MHz voice and data networks and commercially available services such as Cellular Digital Packet Data (CDPD) and their applicability for City use. Short-term measures such as use of CDPD are also being explored to address current operational and capacity issues. Long range plans including 3rd Generation (3G) and other technologies have been

discussed. Refinement of the City's wireless data requirements was completed in June 2001. The process for evaluation of wireless technology options is dependent on new FCC specifications for mobile data bandwidth/frequencies, which is expected to be released in July 2002.

8.2.18 Expand City's Private Paging Infrastructure

Description/Scope: Preliminary review has been completed to determine the overall efforts to upgrade the current electronic paging network infrastructure. Some public safety applications depend on this infrastructure. This initiative will include development of an implementation plan for expansion of the paging infrastructure to provide better, more reliable services. The target end date is March 2002.

8.2.19 Implement Centralized Accounts Receivable Tracking System (CARTS)

Description/Scope: This project will centralize accounts receivable information for several City billing systems within a single integrated solution. A centralized database will be able to support real-time information for access by internal staff and City customers, improve account management by applying consistent Citywide policies, and provide opportunities for streamlining payment processing. The system would also replace the existing legacy Citywide accounts receivable system (ARIS). The project is expected to complete requirements development during FY2002.

8.3 KEY STRATEGIC INITIATIVES: PRIORITY #1

Key strategic initiatives were identified and prioritized to meet the City's IT strategies and objectives. The initiatives identified with the highest priority are described below:

8.3.1 Establish a Customer/Provider Model with SDDPC

DESCRIPTION/SCOPE

This initiative will augment the City's relationship with SDDPC as a strategic partner to formalize a customer/provider business model. The purpose is to clearly define the business and contractual relationship between the City and SDDPC (i.e., City as customer and SDDPC as IT service provider). Roles and responsibilities of City IT staff and SDDPC staff will be clearly delineated to support this enhanced business model, based on the agreed upon primary responsibilities. Where appropriate, the Operating Agreement and Service Level Agreement between SDDPC and the City will also be modified to: redefine roles and responsibilities; clarify IT service level expectations and performance measures; and delineate IT services acquired through SDDPC. In addition, the City will work with SDDPC to ensure that IT decisions support the City's IT vision of improving services to the public and improving internal City operations and management.

Using the new IT governance structure, the City will develop clear performance metrics and accountability mechanisms for IT services delivery from SDDPC and by the City.

Timeframe: This is envisioned to be a 12-month effort

Sponsor: City CIO

Budget: $50,000 - $100,000 in consulting services, plus staff time devoted to redefining the relationship with SDDPC

Funding Availability: Yes

KEY PROJECT OBJECTIVES

- Where appropriate, modify the Operating Agreement and Service Level Agreement to reflect the strategic partnership in implementing a customer/provider model
- Clarify and document roles and responsibilities for City IT staff and SDDPC staff

KEY PROJECT MILESTONES

- SDDPC Operating Agreement and Service Level Agreement supports the strategic partnership for implementation of a customer/provider model
- Clear IT service delivery performance metrics established and communicated, including a mechanism for annual review and updates

8.3.2 Redefine the City's IT Organization

DESCRIPTION/SCOPE

This initiative will redefine the City's IT organization, including the IT organizational structure, staffing levels, IT services sourcing strategy, hiring practices, and staff training and development plans. Roles and responsibilities will be further detailed and documented. Key policies and procedures (e.g., use of computer technology and digital information) will also be documented and communicated Citywide.

A sourcing strategy will be developed that prioritizes service areas for consideration of sourcing alternatives and delineates the strategy for evaluating those options. This will be a collaborative effort between the City and SDDPC and will include: 1) benchmarking of current IT services (e.g., data center, LAN support, Help Desk); 2) assessment of market opportunities; 3) identification of best practices as well as partnerships; and 4) development of a procurement strategy (e.g., what services to bundle and unbundle?). Also, the sourcing strategy will ensure that employee transition plans are developed and communicated as necessary. It will also ensure that service level agreements are developed that clearly define performance metrics and accountability mechanisms with sourced vendors.

Preferred alternatives for hiring qualified City IT staff will be identified (e.g., new classified positions with broadband salary ranges, unclassified positions, etc.). The CIO and Department IT staff will be involved in the development of hiring practices and the recruitment and interview processes. Hiring efforts will focus on critical skill areas (e.g., project management, contract relationship management, IT lifecycle and principles.) A recruitment plan will be developed. IT employee retention strategies will be identified and implemented.

A skills assessment of all City IT staff will be conducted (focused on soft skills and IT skills) to determine skills needed and desired by IT staff, including project management. Training and development plans for each City IT employee will then be developed that tie back to the skills assessment. Training and development will be tied to performance reviews and promotion opportunities. Appropriate funding will be budgeted to support the training and development plans. Back-fill needs and processes will be identified and implemented to allow staff to pursue training. Plans for knowledge transfer from City IT employees to vendor and from vendor to City IT employees will also be built into vendor contracts as appropriate.

Timeframe: This is envisioned to be a 12-month effort

Sponsor: City CIO

Budget: $200,000- $400,000

Funding Availability: Yes

KEY PROJECT OBJECTIVES

- Further detail and document roles and responsibilities for City IT service delivery organizations
- Develop service level agreements with clearly defined performance metrics and accountability mechanisms for all vendors
- Facilitate the hiring and retention of qualified City IT staff
- Provide the framework to ensure that staff have the tools and training necessary to be successful, including soft skills such as project management, contract management, and communications

KEY PROJECT MILESTONES

- IT service delivery performance metrics established and communicated to vendors
- City IT organizational structure developed that ensures the highest quality of IT service delivery and is aligned with the City's organizational structure
- Staffing study completed that recommends appropriate skill sets and City staffing levels for centralized and Department IT staff
- Strategic sourcing strategy developed that describes service areas for consideration of sourcing alternatives
- Revised human resources practices developed that help attract and retain qualified City IT employees
- Training and development plans developed for all City IT staff
- Enhanced IT organization implemented

8.3.3 Implement a Governance Framework

DESCRIPTION/SCOPE

This initiative will test, modify and implement an IT governance structure for the City. This structure will include an IT Board, IT Governance Committee, Business Case Review Committee, IT Technical Advisory Committee and appropriate technical workgroups (e.g., Wireless, GIS, e-Government/Internet).

This structure will be tested on selected projects and then modified before being fully implemented. The governance structure will be assessed annually and modified as necessary.

Timeframe: This effort has been initiated. The testing of the governance structure will take place over a six-month period (March 2001 – September 2001). The modification and rollout of the governance structure will take place over the following three-month period (October 2001 – December 2001). The governance structure will be assessed and modified as necessary on an annual basis.

Sponsor: City CIO

Budget: Staff time devoted to developing governance structure and documentation

Funding Availability: Yes

KEY PROJECT OBJECTIVES

- Clearly establish IT decision-making bodies and processes
- Facilitate stakeholder input into decision-making processes
- Clearly establish criteria that will be used to make decisions
- Develop a comprehensive IT budget for the City
- Improve the monitoring of IT budget spending for Citywide projects
- Improve the City's IT project monitoring and reporting processes
- Develop and document Citywide standards, policies and procedures
- Develop processes to enforce standards, policies and procedures
- Develop processes to grant exceptions to standards
- Increase communication regarding significant IT investments and their Citywide impacts

KEY PROJECT MILESTONES

- Governance structure defined
- Governance structure tested on specific projects, including:
  - Central Accounts Receivable Tracking System
  - Migration from Corel Suite to Microsoft Office Suite
  - Development of performance measures for SDDPC SLA
  - Establishing City technology baseline (i.e., minimum standards)
- Governance structure modified as necessary based on experience
- Governance structure implemented for all City IT projects

8.3.4 Develop a City Program Management Office

DESCRIPTION/SCOPE

This initiative will develop a City Program Management Office (PMO) responsible for building the project management capabilities (other than technical) of City IT staff and for working cooperatively with SDDPC in their role providing technical project management. This will enable the City to appropriately staff IT projects and take bottom-line accountability for the overall success of both the program and technical aspects of IT projects. The City PMO will be responsible for working with SDDPC in selecting appropriate project management methodologies that will be standardized for all City IT projects. The City PMO will develop and provide training for City IT staff and may be assisted by SDDPC using their existing PM training. A curriculum will be offered internally and/or externally that will help City IT staff learn the standard project management methodologies and improve their project management skills.

Depending on the nature of the IT project, the City PMO will also facilitate the sourcing of appropriate project management skills and expertise (e.g., use of third-party project managers to augment City capabilities). The City PMO will also be responsible for sharing project lessons learned from project successes and failures so that City IT staff can continuously improve their project management skills. The City PMO will also provide project management assistance to City Department IT projects as necessary.

Timeframe: This is envisioned to be a six-month effort.

Sponsor: City CIO

Budget: $100,000 - $150,000 in consulting fees plus an FTE to establish the Program Management Office. Additional staff will be needed to support the Office.

Funding Availability: Yes

KEY PROJECT OBJECTIVES

- Establish processes and resources to help ensure success of IT projects
- Minimize risks in increased project scope, costs, and schedule
- Ensure management of IT projects remain a strategic focus for the City

KEY PROJECT MILESTONES

- Assessment of City IT project management environment completed (leverage results of IT strategic planning efforts as well as IT staff skills assessment)
- City Program Management Office established
- Standard IT project management methodology for the City identified jointly with SDDPC
- Project management training for City IT staff initiated
- Project management training for City IT staff completed

8.3.5 Improve Computing Infrastructure

DESCRIPTION/SCOPE

Some efforts are underway in various departments to improve LAN connectivity and performance to achieve more efficient communications, data exchange, and information systems access.

The scope of this initiative includes an assessment of Citywide and departmental LAN improvement needs, and development of a more detailed enterprise-wide implementation plan.

This initiative also includes evaluation of options by the City for implementation of server and storage consolidation opportunities to minimize the City's total cost of ownership (TCO). This includes review of the potential solution developed by SDDPC using Storage Area Network (SAN) technologies.

Departments have expressed the need for desktop management tools since current centralized management is only done up to the wiring closet. The City's strategy is to handle network management from the computer device to the network jack on the wall.

Timeframe: This is envisioned to be a two-year effort

Sponsor: City CIO

Budget: $4-$7 million, there are projected savings to help fund server consolidation costs

Funding Availability: Yes – using Network Access funds

KEY PROJECT OBJECTIVES

- Determine current and future operational requirements, including document management, convergence of voice and data
- Establish LAN infrastructure to meet current and future business needs
- Provide seamless communications capabilities with high-performance throughput
- Minimize maintenance and support costs

KEY PROJECT MILESTONES

- Current LAN infrastructure improvement projects to ensure synergy with Citywide strategic plan initiative identified and reviewed
- Key operational requirements developed
- LAN design completed
- Server consolidation assessment completed
- Standard desktop and LAN management tools determined
- Detailed implementation plan completed and approved, including budget and staff resources
- Equipment installed and tested
- User acceptance completed

8.3.6 Develop Enterprise Architecture Plan

DESCRIPTION/SCOPE

An enterprise architecture delineates the logical structure of an organization's information technology systems. It divides the systems into major logical components and defines their standardized inputs and outputs. The architecture should address the following domains: Application Architecture, Data Architecture and Infrastructure Architecture. It serves as a decision support tool for continuous IT planning, management, and development processes, and improves communication between the IT organizations and business units. The City's IT Strategic Plan as well as the associated technical strategy workshop materials provide a strong foundation for developing an enterprise architecture plan. Key guiding principles for this plan include:

- Any new application using location-based data will be GIS-enabled
- New applications will include Web-enabling strategies
- Application development/acquisition standards that specifically address enterprise application (EA) functionality
- The architecture will provide the foundation for meeting an enterprise portal strategy
- Technology replacement strategies will be a priority for the City

The broader the scope of the architecture across the City and the deeper its levels of detail, the greater the potential benefit.

SDDPC will assist in the development of the enterprise architecture plan. The City will review and approve the Plan.

Timeframe: This is envisioned to be a six-month effort

Sponsor: City CIO

Budget: $150,000 – $300,000

Funding Availability: Yes

KEY PROJECT OBJECTIVES

- Working in partnership with SDDPC and based on their recommendations, establish an enterprise architecture for applications, data, and technical infrastructure that is consistent with the City's business needs, including the City's desired improvements to its IT organization and service delivery model
- Communicate enterprise architecture plan to the organization and obtain stakeholder buy-in

KEY PROJECT MILESTONES

- Current environment assessed
- Target environment determined
- Citywide technical standards defined
- Technology refresh strategy developed
- Enterprise architecture plan developed

8.3.7 Develop and Establish an Applications Portfolio

DESCRIPTION/SCOPE

An applications portfolio will assist the City in determining current and future allocation of applications resources. The scope of this initiative includes a comprehensive review of the City's current and planned business applications. Based on this review, applications would be categorized as core, enhancement, or frontier. In addition, applications that are candidates for enhancement and retirement will be determined.

Timeframe: This is envisioned to be a three-month effort

Sponsor: City CIO

Budget: Staff time to conduct surveys and assessments

Funding Availability: Yes

KEY PROJECT OBJECTIVES

- Develop the City's applications portfolio to manage the City's IT applications resources and assist in investment decisions
- Establish capability to manage applications using a portfolio approach
- Communicate applications portfolio strategy and obtain buy-in

KEY PROJECT MILESTONES

- Inventory of current and planned business applications completed
- Applications portfolio assessed
- Applications development portfolio developed
- Applications portfolio strategy implemented

8.3.8 Plan for Public Safety Voice and Data System Upgrade

DESCRIPTION/SCOPE

The City's public safety communications system was implemented in 1991. Some efforts are underway to address current operational issues, e.g., transmission of police reports using cellular digital packet data (CDPD) commercial services and replacement of aging mobile devices. Interim measures will be evaluated and implemented as part of this initiative.

This initiative will address the development of an overall strategy for replacement or upgrade of the current infrastructure, including replacement of mobile data terminals (MDTs). In addition, options for use of the infrastructure by other City departments will be evaluated to determine economies of scale and increase cost-effectiveness. User requirements documented by the City's Wireless Technology Committee will be leveraged.

Based on the results of this initiative, a detailed plan and cost model will be developed for replacement of the current public safety communications system.

Timeframe: This is envisioned to be a six-month effort

Sponsor: Public Safety Executives – Police and Fire

Budget: $200,000 - $300,000 for planning efforts; $35 - $45 million to replace the infrastructure and associated end-user devices; $4 - $6 million to address interim measures for public safety

Funding Availability: Interim measures partially funded through COPS grant. Funding for long-term strategies has not been identified – potential source is issuance of bonds.

KEY PROJECT OBJECTIVES

- Identify current and future business and operational needs, including immediate operational issues
- Assess City's current public safety voice and data infrastructure capabilities to meet needs
- Determine strategies and initiatives to address opportunities for improvement, including short-term tactical needs
- Develop communications infrastructure upgrade plan

KEY PROJECT MILESTONES

- Immediate, mission-critical operational needs determined
- Interim measures defined and executed
- Current and future business and operational requirements defined
- Current environment assessed against requirements
- Key recommendations, including economic analysis developed
- Plan completed
- Buy-in from key stakeholders for next steps, e.g., implementation of plan, achieved

8.3.9 Evaluate Options to Replace AMRIS

DESCRIPTION/SCOPE

The City's accounting system was implemented in 1979. The Accounting and Management Resource Information System (AMRIS) provides financial information to assist the Auditor and Comptroller in accomplishing the Charter mandate to oversee and report on the City's financial operations, including preparation of the Comprehensive Annual Financial Report. As the backbone of the City's financial information systems, AMRIS exchanges information with more than 24 other departmental and Citywide systems.

Since AMRIS is a mainframe system designed over 22 years ago, there are limitations in its ability to support end-user reporting and easily interface with the current generation of financial systems. In addition, it is becoming increasingly difficult to acquire the technical support for a system based on legacy technology. The City needs to replace AMRIS with current technology that will increase productivity and enable customers to easily access and manipulate data to meet their business needs.

This initiative will assess options for replacement of AMRIS, including the potential for an integrated financial system that encompasses budgeting, accounting, and decision support systems. As an interim measure, this project may include an assessment of how portal technology can provide a temporary method of access to AMRIS data using newer Internet/web browsers.

Timeframe: This is envisioned to be a six-month effort

Sponsor: Auditor and Comptroller

Budget: $100,000 - $200,000 in consulting costs for evaluation; $15 - $20 million for system replacement. Existing staff will also be assigned to the evaluation.

Funding Availability: No

KEY PROJECT OBJECTIVES

- Identify current and future business and operational needs
- Assess City's current applications capabilities to meet needs
- Analyze options, including cost/benefit to address opportunities for improvement
- Present alternatives and recommendation and obtain buy-in on next steps

KEY PROJECT MILESTONES

- Current and future business and operational requirements defined
- Current environment assessed against requirements
- Key options, including economic analysis developed
- Evaluation completed
- Buy-in from key stakeholders for next steps achieved

8.3.10 Determine Customer Relationship Management (CRM) Requirements

DESCRIPTION/SCOPE

This initiative is to identify requirements that support the City's vision for a service delivery model that is citizen-centric, and provides a "single face" to government. A CRM is widely used in the private sector where customer historical information is captured and retained and used to analyze patterns and trends to identify consumer habits.

For the City, a CRM could capture historical information on all services provided by the City to its customers. This would allow the City to analyze trends and proactively identify key service areas to address. It could also potentially allow customers to "query" what services are being provided to their district and others. A key consideration is integration of the City's work order and service request systems to provide a comprehensive view of City services.

Timeframe: This is envisioned to be a four-month project

Sponsor: City CIO

Budget: $200,000 - $300,000 for requirements definition; $4 - $6 million for system implementation

Funding Availability: No

KEY PROJECT OBJECTIVES

- Identify current and future business and operational requirements, including customer facing and constituent tracking requirements
- Determine current City capabilities to meet the requirements and potential gaps
- Identify alternatives and strategies, including cost/benefit, to mitigate potential gaps
- Develop implementation strategy and obtain buy-in

KEY PROJECT MILESTONES

- Current and future business and operational requirements defined
- Current environment assessed against requirements
- Key options, including economic analysis developed
- Implementation strategy developed
- Buy-in from key stakeholders for next steps achieved

8.3.11 Expand e-Government Planning Efforts

DESCRIPTION/SCOPE

The City has identified the need for streamlining its business processes through providing electronic service delivery channels and a "single face" to City government. Based on this, several "quick win" projects are underway to enhance the City's electronic service delivery capabilities. Some of these projects are described in this Plan. Also, as part of the IT strategic planning process, a recent citizen survey was conducted to solicit input on the City's Web presence. From this survey, it was determined that citizens want more transactional services online, e.g., Park and Recreation scheduling and reservation, including a venue to access other governmental agencies' services (e.g., County of San Diego, State of California).

This initiative would address those service needs in more detail as well as review the City's current e-Government plans to ensure alignment with the City's IT Strategic Plan. Also, it will include refinement of the City's e-Government framework and strategies and an assessment of the City's overall readiness from three perspectives: organization, customer, and technology. The end result would be a list of initiatives and implementation strategies pertaining to electronic service delivery.

Timeframe: This is envisioned to be a four-month effort.

Sponsor: City CIO

Budget: $200,000 – $300,000; additional funding requirements of approximately $4 million is envisioned for initiatives identified from the planning efforts

Funding Availability: Yes: IT New Development Fund

KEY PROJECT OBJECTIVES

- Formalize the City's e-Government planning efforts, including a framework for department-specific plans
- Ensure alignment with City's IT strategic plan
- Determine readiness of the City and its customers to embrace electronic service delivery (leverage results of the IT strategic planning process and December 2000 citizen survey), including Digital Divide issue and Public Key Infrastructure (PKI) requirements
- Define key e-Government initiatives and implementation strategies

KEY PROJECT MILESTONES

- Current e-Government planning documents reviewed
- e-Government goals and objectives defined
- Readiness assessment completed, including Digital Divide issue
- Final e-Government plan developed

8.3.12 Establish Plan for Citywide Integrated Document Management Approach

DESCRIPTION/SCOPE

Four City departments currently use document management and imaging systems as follows:

- City Clerk – Documentum
- MWWD – Documentum
- Police Department – FileNet
- Water Department – cImage
- Citywide CADD - Documentum

Other City departments have embarked on planning efforts for implementation of document management systems. This initiative will provide a Citywide strategy for integrated document management that addresses the following components:

- Create document structure
- Determine roles and responsibilities
- Analyze business processes
- Design database
- Determine infrastructure requirements

Some of the results of this planning effort could be further leveraged when the City evaluates enhanced GroupWare and collaboration requirements.

Timeframe: This is envisioned to be a four-month effort

Sponsor: Senior Deputy City Manager - George Loveland

Budget: $100,000 - $200,000 for IDM plan; $2 - $3 million for system implementation

Funding Availability: Yes - City Enterprise Fund

KEY PROJECT OBJECTIVES

- Identify current and future business and operational requirements, including customer facing requirements, workflow, imaging, and digital signatures
  - Leverage results of the 1472 process and digital signatures evaluation
- Determine current City capabilities to meet the requirements and potential gaps
- Develop integrated document management strategy and obtain stakeholder buy-in

KEY PROJECT MILESTONES

- Current and future business and operational requirements defined
- Current environment assessed against requirements
- Key options, including economic analysis developed
- Implementation strategy developed
- Buy-in from key stakeholders for next steps achieved

8.3.13 Develop Plan for Integrated Work Order, Service Request, and Maintenance Management Systems

DESCRIPTION/SCOPE

The City currently has five maintenance management systems (i.e., MWWD, Water, Transportation, Facilities Maintenance, and Environmental Services). Some efforts are underway to enhance these systems.

This initiative will establish a plan for an integrated solution that could support the needs of the City, and in particular support the City's electronic service delivery model.

Timeframe: This is envisioned to be a three-month effort

Sponsor: Senior Deputy City Manager - George Loveland

Budget: $150,000 - $200,000 for planning

Funding Availability: No - Enterprise

KEY PROJECT OBJECTIVES

- Identify current and future business and operational requirements, including customer facing requirements
- Determine current City capabilities to meet the requirements and potential gaps
- Develop strategy and obtain buy-in

KEY PROJECT MILESTONES

- Current and future business and operational requirements defined
- Current environment assessed against requirements
- Key options, including economic analysis developed
- Implementation strategy developed
- Buy-in from key stakeholders for next steps achieved

8.3.14 Implement IT Asset Management System

DESCRIPTION/SCOPE

The City recently completed an assessment of its IT Asset Management practices. This assessment indicated that there are potential cost savings opportunities with the implementation of a more robust system.

This initiative will enable the City to maintain information on the City's information technology assets, which would result in more cost-effective maintenance and support, as well as economies in software licensing arrangements.

Timeframe: This is envisioned to be a nine-month effort

Sponsor: IT&C Director

Budget: $700,000 - $800,000 (includes inventory of assets)

Funding Availability: No

KEY PROJECT OBJECTIVES

- Establish detailed implementation plan, including procurement, vendor selection, contract negotiations, and deployment tasks
- Establish staff resources for implementation and ongoing support of the system
- Develop appropriate policies and procedures
- Implement an IT Management System that meets or surpasses the City's business requirements

KEY PROJECT MILESTONES

- Current and future business and operational requirements defined
- System procured
- Inventory completed and database populated
- System installed
- Operational readiness assessment completed (e.g., Training completed? Policies written?)
- Operational cutover completed

8.3.15 Implement Case Management System

DESCRIPTION/SCOPE

The case management system used by the Criminal Division of the City Attorney's Office was developed approximately 15 years ago. The application is an IBM mainframe-based system using database systems and software languages that are inflexible and difficult to maintain. Since the modifications required to meet current business needs are economically infeasible, the application functionality no longer supports the division's business processes. Many operations that could be done electronically are performed manually. In addition, the system does not have the capability to easily interface with the new generation of systems being implemented by other City departments and agencies that exchange criminal information with the Attorney.

This initiative will enable the City to implement a case management system for the Criminal Division to support the prosecution of misdemeanor criminal cases within the City of San Diego. The new system will be based upon business best practices and proven IT standards. The application will support the business operation, improve staff efficiencies, provide executive information for management and legislators, and enable the exchange of criminal information with business partners.

Timeframe: This is envisioned to be an 18 month effort

Sponsor: Assistant City Attorney, Criminal Division

Budget: $1,200,000 - $1,500,000

Funding Availability: No

KEY PROJECT OBJECTIVES

- Review existing processes and best practices, and redesign processes to improve utilization of staff and resources
- Evaluate solutions which meet the Criminal Division's needs and could potentially be extended to other divisions (i.e. Civil)
- Identify infrastructure requirements and implement additional infrastructure as required to support the application
- Establish staff resources for implementation and ongoing support of the system
- Implement a Case Management system that meets or surpasses the business requirements

KEY PROJECT MILESTONES

- Current and future business and operational requirements defined
- System procured
- System installed
- Operational readiness assessment completed (e.g., Training completed? Policies written?)
- Operational cutover completed

8.3.16 Establish Minimum Technology Baseline

DESCRIPTION/SCOPE

From a Citywide perspective, there is currently a disparity in the minimum acceptable desktop capabilities. I.e., some departments have been able to support growing end-user desktop needs. Others have desktops implemented that are not performing optimally. This is largely due to funding constraints in those departments.

This initiative will include identifying funding mechanisms to provide for a common, standard set of desktop computing capabilities. These may include personal productivity tools such as word processing and spreadsheet software as well as GIS tools.

Timeframe: This is envisioned to be a six-month effort

Sponsor: City CIO

Budget: $13.5 - $18 million (assuming 9,000 desktops – 7,800 refresh and 1,200 new desktops)

Funding Availability: No

KEY PROJECT OBJECTIVES

- Determine overall needs for desktop capabilities, including categories of end-users
- Determine standard desktop tools
- Identify funding mechanisms
- Deploy common set of desktop tools

KEY PROJECT MILESTONES

- Standard desktop capabilities defined, including end-user categories (leverage results from the Enterprise Architecture Plan initiative)
- Budget and funding established
- Detailed project plan completed
- Desktops refreshed or updated with common set of tools

8.3.17 Implement Enterprise Portal Strategies

DESCRIPTION/SCOPE

Enterprise portals provide Web-enabled capabilities for search engines, directory services, and personalization. A portal would enable the City to show a more unified, easy to use City Web page. Several state agencies have embarked on similar initiatives including Arizona, Virginia, and Texas. Some of these initiatives include strategic partnerships with the private sector that would minimize one-time investments in exchange for marketing or preferred vendor privileges.

In conjunction with its overall e-Government initiative, this initiative will implement the City's enterprise portal (including public/private partnerships and systems integration requirements) that would serve as a single "door" to City services. SDDPC and the City completed an initial pilot of an enterprise portal and are continuing with a broader pilot for the City Intranet site.

Timeframe: The planning efforts and pilot testing are underway. Implementation of an enterprise portal is anticipated to be in phases, with the first phase implemented within one-year of contracting with a vendor

Sponsor: CIO

Budget: $100,000 - $200,000 for evaluation; $4 - 6 million for implementation

Funding Availability: No – some funding sources potentially include marketing and convenience fees

KEY PROJECT OBJECTIVES

- Identify current and future business and operational needs – leverage pilot efforts
- Assess City's current systems and identify linkages needed
- Analyze options, including public/private partnerships
- Phase integration of existing and new systems

KEY PROJECT MILESTONES

- Current and future business and operational requirements defined
- Technical requirements, e.g., linkages with existing systems identified
- Key options evaluated including funding and economic analysis
- Recommendation presented and buy-in on next steps achieved
- Phased implementation completed

8.3.18 Expand the City's GIS Data Resources

DESCRIPTION/SCOPE

The City in partnership with the San Diego Geographic Information Source (SanGIS) consortium has developed an extensive set of GIS data resources. This includes a base map layer that includes geographic data attributes such as road types, hundred blocks, directional, and others. In addition, other layers such as council districts and police beats have also been developed.

Although ongoing efforts are underway in various departments to expand the City's GIS data resources, this initiative, in coordination with SanGIS, will formalize those processes to provide a unified and coordinated approach to expanding the City's geographic data warehouse.

Timeframe: This is envisioned to be a sixteen-month effort

Sponsor: IT&C, Planning, and Development Services

Budget: No additional budget required – requires ongoing staff support

Funding Availability: Yes

KEY PROJECT OBJECTIVES

- Develop Citywide plan for expansion of geographic data sources
- Formalize roles and responsibilities, including data ownership and maintenance, among City departmental resources
- Develop appropriate policies and procedures
- Implement Citywide plan, including ongoing performance measures and communications

KEY PROJECT MILESTONES

- City geographic data resources inventoried
- Additional geographic data needs determined
- Citywide plan developed and communicated
- Stakeholder buy-in achieved
- Implementation coordinated through City's GIS Manager

8.4 KEY STRATEGIC INITIATIVES: PRIORITY #2

The following key initiatives are considered second priority, and in general, are anticipated to begin in fiscal year 2003.

8.4.1 Enhance the City's GIS Base Map

DESCRIPTION/SCOPE

The current GIS Base Map used by the City is published to an average accuracy of 10 feet. The proposed project would increase this accuracy to the order of +/- 0.5 foot. In addition, boundary conflicts existing in current land records would be identified and corrected under the guidance of a professional land surveyor.

The resulting digital product would enable production of maps to meet the National Map Accuracy Standards at scales typically used by the City. The enhanced mapping would also be more effectively and reliably utilized when overlaid with existing aerial photographs and mapping of grades and topography.

Timeframe: This is envisioned to be a three-year effort

Sponsor: Development Services

Budget: $3.5 - $7 million

Funding Availability: No

KEY PROJECT OBJECTIVES

- Develop detailed implementation plan based on pilot experience and technical committee feedback
- Identify and establish infrastructure required for implementation
- Identify and establish staff resources for implementation
- Identify and establish contract resources for implementation
- Implement Base Map conversion plan, including ongoing performance measures and communications
- Evaluate completed project

KEY PROJECT MILESTONES

- Budget and funding established
- Detailed project plan approved
- Infrastructure established
- Staffing and contract resources in place
- Document research completed
- Document imaging & processing completed
- COGO conversion completed
- Compilation & assembly completed

8.4.2 Implement GPS/AVL for Field Operations

DESCRIPTION/SCOPE

A Wireless Technology Committee was recently established with representation from City departments. The Committee is currently defining wireless data and applications requirements. One of these requirements, is the ability to locate City vehicles or equipment through global positioning technology. This will result in field operations safety as well as facilitate more responsive services. The Fire Department currently utilizes AVL technology. The scope of the initiative is to implement AVL equipment, systems, and processes on key City equipment and vehicles. Environmental Services is envisioned to be the first department for deployment of AVL capabilities.

Timeframe: This is envisioned to be a 14-month effort.

Sponsor: Public Safety and Enterprise Departments

Budget: $7.5 - $10 million

Funding Availability: No

KEY PROJECT OBJECTIVES

- Enhance City field operations, including safety of personnel
- Limit City liability and exposure
- Enhance City services and responsiveness

KEY PROJECT MILESTONES

- Functional and technical requirements defined
- Equipment and systems procured
- Equipment and systems installed and tested
- Operational readiness assessment completed
- Operation cutover

8.4.3 Plan and Implement Integrated Permitting and Licensing Systems

DESCRIPTION/SCOPE

Many City departments are responsible for permitting and licensing functions. For example, the Police Department provides permits for regulated businesses such as massage parlors; the Fire Department inspects buildings for fire safety compliance; and the Development Services Department oversees building construction. These departments use different automation systems to support their respective permitting and licensing functions. In addition, the Development Services Department is in the process of implementing a replacement for the legacy permitting systems through its Project Tracking System. Also, the Neighborhood Code Compliance Division is evaluating requirements for tracking and enforcement of code compliance.

This initiative will include implementation of systems and business processes that would improve the City's internal and external permitting and licensing services. It will potentially include augmentation or replacement of existing systems, including providing citizens with access to these services through the City's Web site and other communications channels.

Timeframe: This is envisioned to be a multi-phase effort, over 18 months

Sponsor: City CIO

Budget: $3.5 - $7 million

Funding Availability: No

KEY PROJECT OBJECTIVES

- Evaluate current permitting and licensing processes and business requirements to determine synergies and optimize related City services
- Establish internal business processes in support of integrated licensing and permitting functions
- Provide citizens with alternative channels to access City permitting and licensing services, with a focus to create a "single" interface to City services
- Streamline business functions and supporting systems, thereby gaining cost-efficiencies

KEY PROJECT MILESTONES

- Permitting and licensing requirements defined, i.e., Citywide and departmental-specific needs
- Replacement/augmentation options evaluated, including an economic analysis
- New system procured or augmented
- Integrated system installed and tested
- Operational readiness assessment completed
- Operational cutover completed

8.4.4 Evaluate Options for an Integrated Human Resources and Payroll System

DESCRIPTION/SCOPE

Four key autonomous systems currently support the City's personnel, payroll, training, and benefits. These systems are largely legacy applications, and were custom-developed on mainframe-based platforms using third generation programming languages. These include PATS (Personnel Applicant Tracking System), CAPPS, TIMS, and the flexible benefits system (with a front-end IVR component).

This initiative will evaluate the City's current environment pertaining to human resource and payroll functions and will include high-level business process reviews to identify opportunities for streamlining, and determine integrated, automated solutions in support of improved business processes.

Timeframe: This is envisioned to be a four-month effort

Sponsors: Personnel Director, Auditor and Comptroller, and HR Manager

Budget: $100,000 - $150,000 for evaluation of options; $7-$12 million for implementation of solution

Funding Availability: No

KEY PROJECT OBJECTIVES

- Determine business process improvements to streamline internal City operations
- Define key functional and technical requirements, including State and Federal compliance
- Identify options in support of process improvements and conduct economic analysis (options might include Application Service Providers (ASPs)
- Solicit buy-in on recommended option

KEY PROJECT MILESTONES

- Business process improvements defined
- Key functional requirements identified
- Current systems assessed in relation to desired business process improvements and key functional requirements
- Replacement/integration strategies defined
- Buy-in from key stakeholders

8.4.5 Upgrade Citywide Group Collaboration Capabilities

DESCRIPTION/SCOPE

The City currently utilizes Novell GroupWise for e-mail, scheduling, and calendaring. The City envisions that it will transition to Microsoft Outlook within the next two to three years. The transition will allow the City to standardize on a single suite of personal productivity software, which is expected to result in reduced support, maintenance, and licensing costs.

The City is in the process of migrating its word processor and spreadsheet software to the Microsoft Office Suite, and some departments have adopted Microsoft Outlook as its internal e-mail tool.

Timeframe: This is envisioned to be a nine-month effort (in conjunction with desktop initiative)

Sponsor: City CIO

Budget: $1.5 – 2 million

Funding Availability: No

KEY PROJECT OBJECTIVES

- Plan for migration strategies, including identifying costs and risks
- Migrate City e-mail from Novell GroupWise to Microsoft Outlook
- Streamline maintenance and support operations, including staff costs
- Minimize total cost of ownership

KEY PROJECT MILESTONES

- Migration strategies and specific implementation plan defined
- Microsoft Outlook deployed
- Training completed
- Operational readiness assessed
- Migration completed

8.4.6 Provide Common Set of Secured Remote Access Tools

DESCRIPTION/SCOPE

Remote access, i.e., from non-City facilities, to City systems and information is currently provided to some employees. In addition, remote access tools have been successfully piloted through the employee telecommuting program over the last few years. And with the City's anticipated growth, it is envisioned that telecommuting programs would assist in addressing potential traffic congestion issues. In addition to telecommuters, there are many City employees who require remote access to City information from non-City facilities (e.g., homes, hotels when traveling).

This initiative will include identification of City requirements and implementation of remote access capabilities that are secure and require minimal intervention and support.

Timeframe: This is envisioned to be a three-month effort

Sponsor: CIO

Budget: $50,000 - $75,000, depending on number of users (estimate a budget of $100/user)

Funding Availability: No

KEY PROJECT OBJECTIVES

- Identify Citywide remote access needs
- Determine current City capabilities to meet these needs
- Identify alternatives, including cost/benefit, to mitigate potential gaps
- Implement secured remote access tools and supporting processes
- Establish maintenance and support procedures

KEY PROJECT MILESTONES

- Remote access requirements identified
- Current capabilities assessed
- Key options evaluated, including economic analysis
- Recommended option procured
- Remote access system and software installed
- Remote access standard established and communicated

8.4.7 Evaluate e-Procurement Strategies

DESCRIPTION/SCOPE

The City implemented its new purchasing system, OPIS, in 1998. Since its implementation, it has been enhanced to help provide additional functionality. An e-procurement solution would further streamline the City's purchasing operations by providing more "self-service" capabilities to departments, e.g., procurement of standard goods and services through catalogs. Other opportunities such as soliciting on-line bids from several suppliers who can provide the same products would enhance the City's capabilities to purchase at lower costs.

Streamlining of operations as well as opportunities to procure at lower costs are a couple of the reasons why e-procurement is seen as a "low hanging" fruit by many agencies. This initiative will include evaluation of options for implementation of e-procurement solutions, including the potential for use of ASPs (Application Service Providers).

Timeframe: This is envisioned to be a four-month effort

Sponsor: General Services Department

Budget: $150,000 - $200,000 for strategy formulation, $2 - $4 million for systems implementation (Note: ASP options may minimize one-time investment costs).

Funding Availability: No

KEY PROJECT OBJECTIVES

- Define procurement process improvements, including "quick wins" and longer term opportunities
- Assess current City capabilities to address process improvement goals
- Evaluate e-procurement solutions in the market including best practices
- Develop e-procurement strategies and recommendations

KEY PROJECT MILESTONES

- High level process improvements defined
- Current City capabilities assessed
- Key options and industry trends identified
- Implementation strategy developed
- Buy-in achieved from key stakeholders

8.4.8 Integrate Internal and External Work Order/Service Request Systems with Maintenance Management Systems

DESCRIPTION/SCOPE

The City currently has five maintenance management systems (i.e., MWWD, Water, Transportation, Facilities Maintenance, and Environmental Services). Some efforts are underway to enhance these individual systems. A plan for an integrated work order and service request system has been identified as a high priority initiative and is anticipated to be defined in FY 2002.

This initiative is for integration of the work order and service request systems with the City's maintenance systems. This will result in better internal and external service delivery and cost-effectiveness, including the potential for an end-to-end solution that would have linkages to enhance the City's procurement, accounting, and inventory functions.

Timeframe: This is envisioned to be a 12-month effort

Sponsor: Enterprise Departments – MWWD, Water, and Environmental Services

Budget: $4 – $5 million

Funding Availability: No

KEY PROJECT OBJECTIVES

- Implement more streamlined work order and service request processes
- Deploy process enabling tools by integrating with maintenance management systems
- Establish maintenance and support functions

KEY PROJECT MILESTONES

- Functional requirements for an integrated system defined, i.e., Citywide and departmental-specific needs
- New system procured or current systems augmented
- Integrated system installed and tested
- Operational readiness assessment completed
- Operational cutover completed

8.5 KEY STRATEGIC INITIATIVES: PRIORITY #3

The following key initiatives are considered third priority, and in general, are anticipated to begin in fiscal year 2004.

8.5.1 Establish Vision and Strategy for Knowledge Management

DESCRIPTION/SCOPE

In support of the City's overall goal of providing electronic service delivery channels to its citizens, this initiative will establish a plan to formalize the City's knowledge management approach. Many of the initiatives identified as priority #1 and #2 will enable the City to manage its intellectual capital as well as its wealth of information. However, as the City moves towards electronic service delivery, it will become more important to ensure that key information being provided and captured from its citizens and other customers (e.g., other governmental agencies) is kept current, and a process for continuous storage, archival, and refresh of vital information is formalized. In addition, as the City faces the retirement of its key leaders and employees (i.e., as baby boomers retire) it is important that a process is established to ensure that the City's collective experience and expertise is preserved.

This initiative will address these critical areas and establish an overall knowledge management strategy for the City.

Timeframe: This is envisioned to be a 4-month effort.

Sponsor: City CIO

Budget: $50,000 - $100,000

Funding Availability: None

KEY PROJECT OBJECTIVES

- Determine requirements for formalized knowledge management
- Create a vision and overall plan for knowledge management
- Communicate plan and obtain buy-in from key stakeholders

KEY PROJECT MILESTONES

- Vision for knowledge management determined
- Knowledge management needs defined
- Current capabilities and gaps identified
- Knowledge management strategies developed
- Buy-in on implementation achieved

8.5.2 Develop Strategy to Enhance Group Collaboration

DESCRIPTION/SCOPE

The City currently uses software and processes that facilitate group collaboration. This initiative will define an overall strategy for enhancing the City's group collaboration capabilities. Some of the group collaboration requirements are addressed by previous, higher priority initiatives such as the development of an integrated document management strategy. Group collaboration requirements generally encompass multiple facets including the following:

- *Calendaring and Scheduling***:** Provides time management and scheduling tools for groups of users and resources. It allows for staff and facilities calendar updates, and supports distributed, remote or virtual meetings
- *Document Management***:** Provides a system for the management and organization of document production, access and distribution
- *Electronic Conferencing*: Provides real-time links for the concurrent creation and viewing of information by multiple users. It supports threaded discussion forums and possible video conferencing.
- *Information Sharing*: Provides a centralized repository for the creation, organization, retrieval and exchange of information
- *Network/Web Integrated Collaborative Environment***:** Provides a platform for integrated document management, e-mail, information exchange, scheduling, and workflow routing and management.

Timeframe: This is envisioned to be a 3-month effort

Sponsor: City CIO

Budget: $ 50,000 - $75,000 for strategy formulation; $1.5 – 2 million for upgrades to collaboration environment

Funding Availability: No

KEY PROJECT OBJECTIVES

- Determine enhanced group collaboration requirements
- Assess current City capabilities and gaps
- Develop group collaboration strategies and implementation plan
- Obtain buy-in from City stakeholders

KEY PROJECT MILESTONES

- Enhanced group requirements defined, i.e., Citywide and departmental-specific needs
- Overall strategy defined
- Implementation plan developed
- Stakeholder buy-in achieved

8.5.3 Implement Integrated Asset Management Systems

DESCRIPTION/SCOPE

Several asset management systems exist throughout the City as a result of departmental-specific needs for tracking assets.

This initiative includes development of an overall plan for consolidating the City's asset management systems and implementation of an integrated solution. This will result in enhanced accounting and management of the City's assets, decreased operational costs to maintain data, and more cost-effective maintenance and support of asset management systems.

Timeframe: This is envisioned to be a 12-month effort

Sponsor: Auditor and Comptroller

Budget: $500,000 - $750,000

Funding Availability: No

KEY PROJECT OBJECTIVES

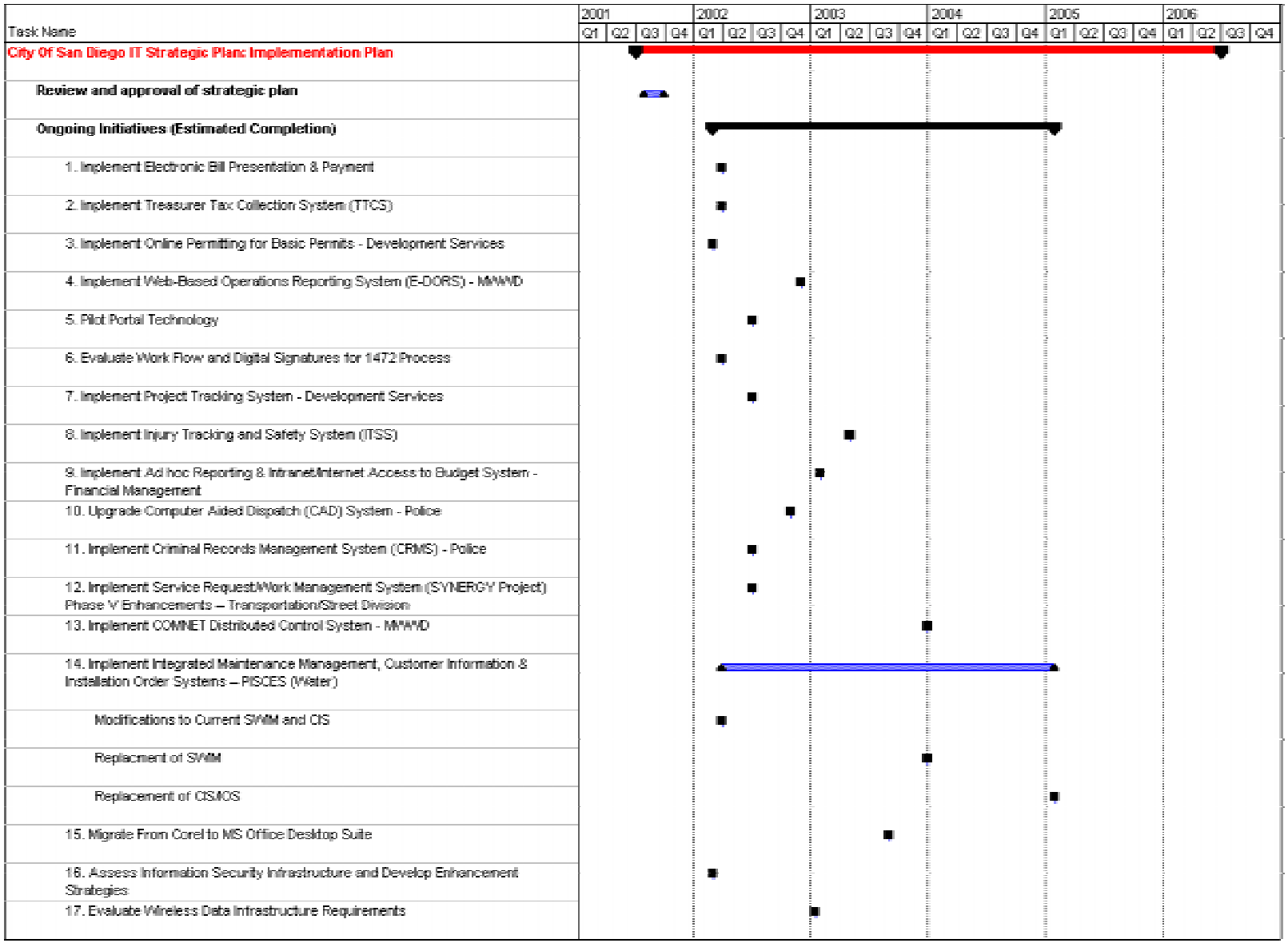
- Determine business process improvements for streamlining internal City asset management operations
- Define key functional and technical requirements
- Develop conceptual system model
- Identify options in support of process improvements and conduct economic analysis
- Solicit buy-in on recommended option
- Procure and implement a new asset management system

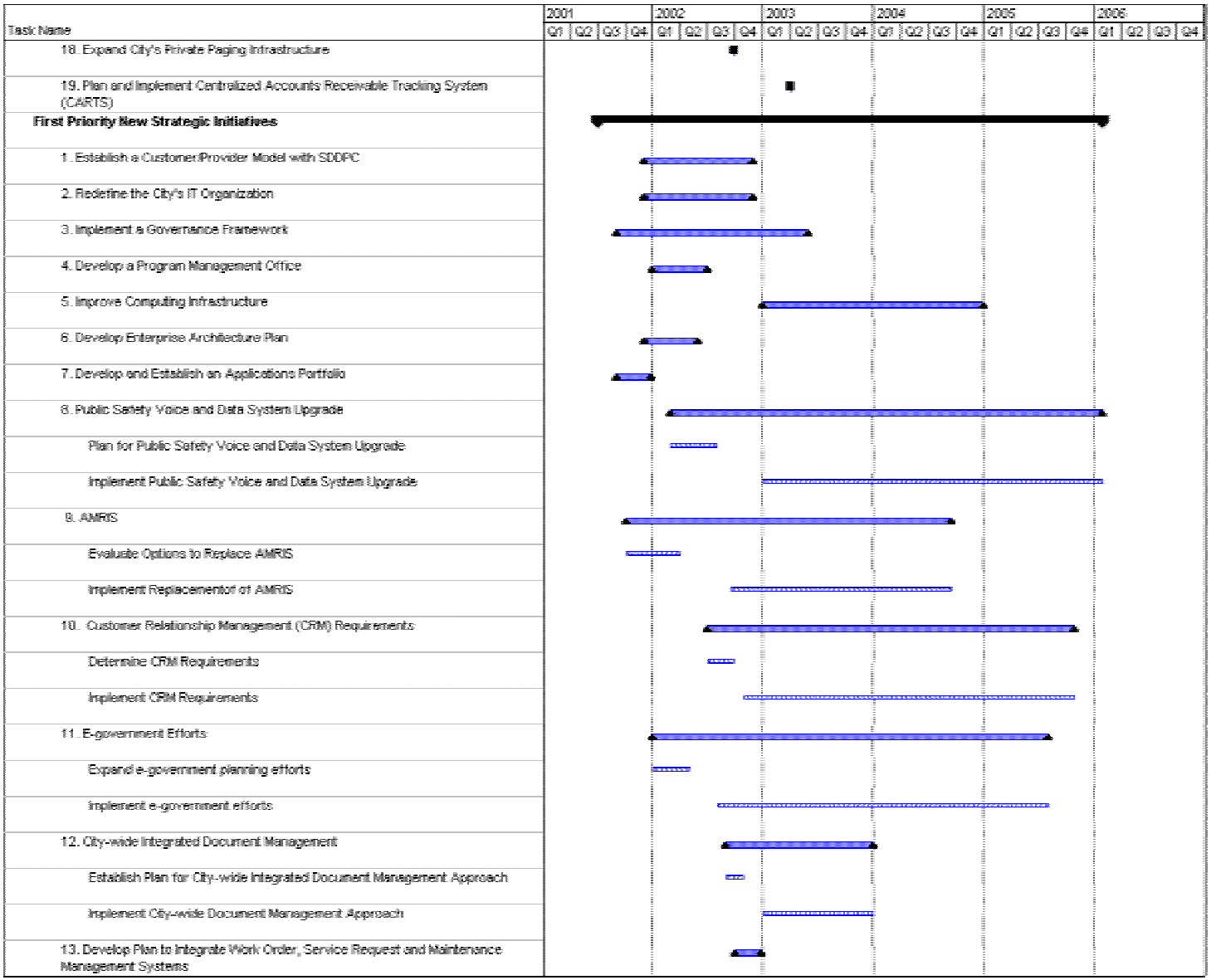
KEY PROJECT MILESTONES

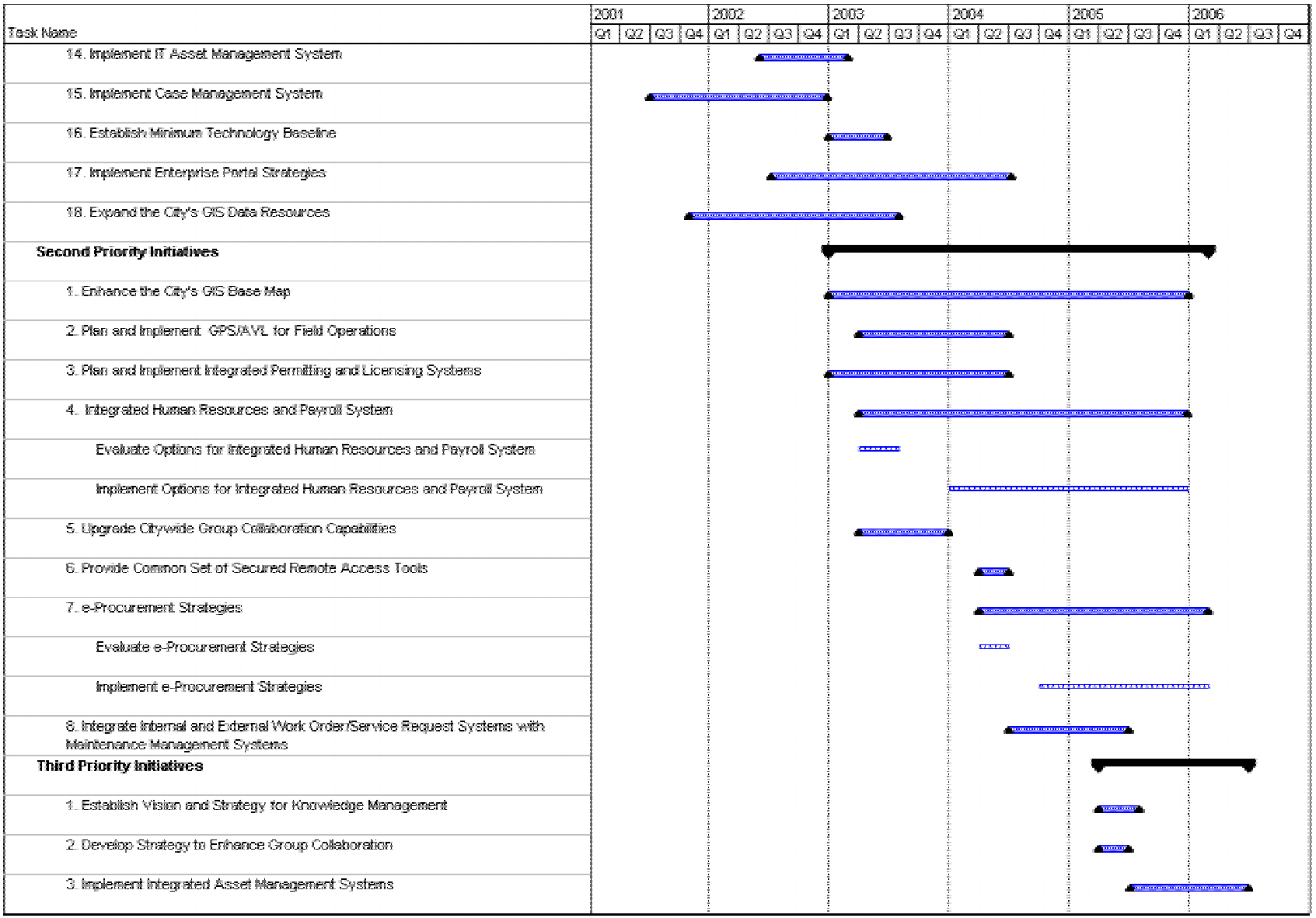
- Business process improvements defined
- Key functional requirements identified
- Current systems assessed in relation to desired business process improvements and key functional requirements
- Replacement/integration strategies defined
- Buy-in from key stakeholders
- New system procured or integrated
- System installed and tested
- Operational readiness assessment successfully completed (i.e., training completed, change management addressed, database populated)
- Cutover to new system

8.6 KEY STRATEGIC INITIATIVES: IMPLEMENTATION SCHEDULE

The high level implementation schedule for current and new strategic initiatives is shown on the following pages.


Task Name
2001
2002
2003
2004
2005
2006
Q1 Q2 Q3 Q4
City Of San Diego IT Strategic Plan: Implementation Plan
Review and approval of strategic plan
Ongoing Initiatives (Estimated Completion)
1. Implement Electronic Bill Presentation & Payment
2. Implement Treasurer Tax Collection System (TTCS)
3. Implement Online Permitting for Basic Permits - Development Services
4. Implement Web-Based Operations Reporting System (E-DORS) - MWWD
5. Pilot Portal Technology
6. Evaluate Work Flow and Digital Signatures for 1472 Process
7. Implement Project Tracking System - Development Services
8. Implement Injury Tracking and Safety System (ITSS)
9. Implement Ad hoc Reporting & Intranet/Internet Access to Budget System - Financial Management
10. Upgrade Computer Aided Dispatch (CAD) System - Police
11. Implement Criminal Records Management System (CRMS) - Police
12. Implement Service Request/Work Management System (SYNERGY Project) Phase V Enhancements – Transportation/Street Division
13. Implement COMNET Distributed Control System - MWWD
14. Implement Integrated Maintenance Management, Customer Information & Installation Order Systems – PISCES (Water)
Modifications to Current SWIM and CIS
Replacement of SWIM
Replacement of CIS/MOS
15. Migrate From Corel to MS Office Desktop Suite
16. Assess Information Security Infrastructure and Develop Enhancement Strategies
17. Evaluate Wireless Data Infrastructure Requirements


Task Name
2001
2002
2003
2004
2005
2006
Q1 Q2 Q3 Q4
18. Expand City's Private Paging Infrastructure
19. Plan and Implement Centralized Accounts Receivable Tracking System (CARTS)
First Priority New Strategic Initiatives
1. Establish a Customer/Provider Model with SDDPC
2. Redefine the City's IT Organization
3. Implement a Governance Framework
4. Develop a Program Management Office
5. Improve Computing Infrastructure
6. Develop Enterprise Architecture Plan
7. Develop and Establish an Applications Portfolio
8. Public Safety Voice and Data System Upgrade
Plan for Public Safety Voice and Data System Upgrade
Implement Public Safety Voice and Data System Upgrade
9. AMRIS
Evaluate Options to Replace AMRIS
Implement Replacementor of AMRIS
10. Customer Relationship Management (CRM) Requirements
Determine CRM Requirements
Implement CRM Requirements
11. E-government Efforts
Expand e-government planning efforts
Implement e-government efforts
12. City-wide Integrated Document Management
Establish Plan for City-wide Integrated Document Management Approach
Implement City-wide Document Management Approach
13. Develop Plan to Integrate Work Order, Service Request and Maintenance Management Systems


Task Name
2001
2002
2003
2004
2005
2006
Q1 Q2 Q3 Q4
14. Implement IT Asset Management System
15. Implement Case Management System
16. Establish Minimum Technology Baseline
17. Implement Enterprise Portal Strategies
18. Expand the City's GIS Data Resources
Second Priority Initiatives
1. Enhance the City's GIS Base Map
2. Plan and Implement GPS/AVL for Field Operations
3. Plan and Implement Integrated Permitting and Licensing Systems
4. Integrated Human Resources and Payroll System
Evaluate Options for Integrated Human Resources and Payroll System
Implement Options for Integrated Human Resources and Payroll System
5. Upgrade Citywide Group Collaboration Capabilities
6. Provide Common Set of Secured Remote Access Tools
7. e-Procurement Strategies
Evaluate e-Procurement Strategies
Implement e-Procurement Strategies
8. Integrate Internal and External Work Order/Service Request Systems with Maintenance Management Systems
Third Priority Initiatives
1. Establish Vision and Strategy for Knowledge Management
2. Develop Strategy to Enhance Group Collaboration
3. Implement Integrated Asset Management Systems

9. HIGH LEVEL ECONOMIC ANALYSIS

9.1 FUNDING REQUIREMENTS

As part of the strategic planning process, a high-level economic analysis was conducted to determine the City's overall funding needs to help achieve its IT strategic goals and objectives.

Of the initiatives identified, the most significant from a funding perspective is related to public safety needs. It is envisioned that these initiatives would be funded through issuance of bonds and federal grants. Other initiatives, such as implementation of replacement solutions for financial and accounting systems as well as human resources and payroll systems could be funded through financing strategies. Some vendors are open to providing financing options. Other options include use of Application Service Providers (ASPs), which provide for various alternatives including transaction fees, per seat charges, and others. The ASP model is also widely used by e-Procurement solution providers.

Other funding strategies include private/public partnerships (e.g., for desktop replacement), marketing sponsorship (e.g., for implementation of enterprise portal) and use of the City's enterprise funds (e.g., implementation of integrated work order/service request and maintenance systems). Analysis of funding options will be undertaken using the City's new IT governance framework.

The estimated funding needs by fiscal year are as follows. The next page provides a high-level estimate, by fiscal year, of one-time costs for each initiative.

- FY 2002 $ 4 – $ 7 million
- FY 2003 $ 35 - $50 million
- FY 2004 $ 38 - $54 million
- FY 2005 $ 23 - $32 million
- FY 2006 $ 20 - $27 million
- Total $120 - $170 million

Initiatives	Initiative Total		FY 2002		FY 2003		FY 2004		FY 2005		FY 2006	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
First Priority Initiatives												
1. Establish a Customer/Provider Model with SDDPC	50,000	100,000	50,000	100,000								
2. Redefine the City's IT Organization	200,000	400,000	200,000	400,000								
3. Implement a Governance Framework												
4. Develop a Program Management Office	100,000	150,000	100,000	150,000								
5. Improve Computing Infrastructure	4,000,000	7,000,000			2,000,000	3,500,000	2,000,000	3,500,000				
6. Develop Enterprise Architecture Plan	150,000	300,000	150,000	300,000								
7. Develop and Establish an Applications Portfolio												
8. Plan for Public Safety Voice and Data System Upgrade	39,200,000	51,300,000	1,700,000	2,800,000	6,000,000	8,000,000	7,000,000	9,000,000	7,000,000	9,000,000	17,500,000	22,500,000
9. Evaluate Options To Replace AMRIS and Complete Implementation	15,100,000	20,200,000	100,000	200,000	7,500,000	10,000,000	7,500,000	10,000,000				
10. Determine Customer Relationship Management (CRM) Requirements	4,200,000	6,300,000	200,000	300,000	1,300,000	2,000,000	1,350,000	2,000,000	1,350,000	2,000,000		
11. Expand and Implement e-Government Planning Efforts	4,200,000	4,300,000	200,000	300,000	1,250,000	1,250,000	1,250,000	1,250,000	1,500,000	1,500,000		
12. Establish Plan and Implement Citywide Integrated Document Management Approach	2,100,000	3,200,000	100,000	200,000	2,000,000	3,000,000						
13. Develop Plan to Integrate Work Order, Service Request and Maintenance Management Systems	150,000	200,000	150,000	200,000								
14. Implement IT Asset Management System	700,000	800,000	700,000	800,000								
15. Implement Case Management System	1,200,000	1,500,000	600,000	750,000	600,000	750,000						
16. Establish Minimum Technology Baseline	13,500,000	18,000,000			4,500,000	6,000,000	4,500,000	6,000,000	4,500,000	6,000,000		

Initiatives	Initiative Total		FY 2002		FY 2003		FY 2004		FY 2005		FY 2006	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
17. Implement Enterprise Portal Strategies	4,100,000	6,200,000	100,000	200,000	2,000,000	3,000,000	2,000,000	3,000,000				
18. Expand the City's GIS Data Resources												
Second Priority Initiatives												
1. Enhance the City's GIS Base Map	3,500,000	7,000,000			1,050,000	2,100,000	1,050,000	2,100,000	1,400,000	2,800,000		
2. Implement GPS/AVL for Field Operations	7,500,000	10,000,000			3,750,000	5,000,000	3,750,000	5,000,000				
3. Plan and Implement Integrated Permitting and Licensing Systems	3,500,000	7,000,000			1,750,000	3,500,000	1,750,000	3,500,000				
4. Evaluate Options and Implement an Integrated Human Resources and Payroll System	7,100,000	12,150,000			100,000	150,000	3,500,000	6,000,000	3,500,000	6,000,000		
5. Upgrade Citywide Group Collaboration Capabilities	1,500,000	2,000,000			1,500,000	2,000,000						
6. Provide Common Set of Secured Remote Access Tools	50,000	75,000					50,000	75,000				
7. Evaluate e-Procurement Strategies	2,150,000	4,200,000					150,000	200,000	1,000,000	2,000,000	1,000,000	2,000,000
8. Integrate Internal and External Work Order/Service Request Systems with Maintenance Management Systems	4,000,000	5,000,000					2,000,000	2,500,000	2,000,000	2,500,000		
Third Priority Initiatives												
1. Establish Vision and Strategy for Knowledge Management	50,000	100,000							50,000	100,000		
2. Develop Strategy to Enhance Group Collaboration	1,550,000	2,075,000							50,000	75,000	1,500,000	2,000,000
3. Implement Integrated Asset Management Systems	500,000	750,000							250,000	375,000	250,000	375,000
Total Fiscal Year Budget	**120,350,000**	**170,300,000**	**4,350,000**	**6,700,000**	**35,300,000**	**50,250,000**	**37,850,000**	**54,125,000**	**22,600,000**	**32,350,000**	**20,250,000**	**26,875,000**

10. COMMUNICATION PLAN

10.1 COMMUNICATION PLAN

10.1.1 Purpose

The communication plan for the IT Strategic Plan will ensure that all stakeholders are informed of the City's IT vision and how the City intends to implement that vision. It will ensure Citywide understanding of accountability for Strategic Plan development and execution. It will also provide stakeholders with communication channels regarding the Plan and its implementation. A communication team will be identified by the CIO and will be responsible for implementing the communication plan.

10.1.2 Objectives

The City intends to achieve the following objectives through this communication plan:

- Inform internal and external stakeholders and provide timely and factual information through a formalized communications process
- Engage stakeholders and promote change through the communication of benefits and challenges of initiatives, the consequences of not succeeding and participants' roles in making the IT Strategic Plan implementation effort successful
- Address un-channeled communication and rumors through managing stakeholder perceptions and expectations of outcomes and requirements in order to reduce fears, uncertainty, and rumors
- Obtain feedback from stakeholders through a process allowing participants to provide feedback, communicate concerns and discuss and resolve issues. Ensure a forum for two-way communication is established and identify and direct issues to appropriate arenas for resolution.
- Generate IT Strategic Plan implementation support through the acknowledgment and celebration of progress and success.

10.1.3 Expected Benefits

The City hopes to achieve the following benefits through the execution of the communication plan:

- Acceptance of change as a result of open, honest education regarding the status of various initiatives including system selection, development, and implementation
- Development of communications that respond directly to stakeholder information needs
- Development of a method to identify and track the resolution of issues related to any part of the IT Strategic Plan
- Recognition of successes as well an enhanced understanding of the benefits of strategic planning
- Increased internal City team effectiveness.

10.1.4 Success Factors

The following factors will be considered by the IT Strategic Planning team to ensure the communication plan is successfully implemented:

- Awareness – Communication about issues/initiatives/projects will occur. If stakeholders are not informed of objectives, outcomes and associated impacts, they will not be prepared for the changes or support the changes around them.
- Content – Communication will be relevant and meaningful and will convey realistic expectations by openly dealing with the impact of change. Communication strategies will also be based on stakeholder needs and feedback.
- Timeliness – Information will be shared in a timely manner to allow stakeholders opportunities to digest messages and react.
- Context– All communications will demonstrate and reinforce City/Council/ITGC/Department support and commitment by clearly indicating that the project sponsors and project managers are the sources of information.
- Format and Media- All communications will be developed and delivered in a format that is efficient, understandable and easily accessible.
- Communication Flow – The communication team / ITGC will be responsible for reviewing communications to ensure correspondence conforms to City and strategic plan guidelines. The review will verify continuity of messages to stakeholders, departments, etc. This will ensure the message conveyed is consistent with goals and objectives.
- Effectiveness – To ensure effective communications, regular assessments of the communication plan and process will be conducted. Communication issues and resolutions will be tracked to ensure effective follow-up on communication issues.

10.1.5 Stakeholders

The following internal and external stakeholders will be the target audience for communications regarding the IT Strategic Plan:

- Internal Stakeholders
  - Information Technology Executive Team – City Manager, Deputy City Managers, and Auditor and Comptroller, Personnel Department Director
  - Information Technology Governance Committee (ITGC) – Comprised of department directors and other executives appointed by the IT Executive Team.
  - Chief Information Officer (CIO)
  - Information Technology Strategic Plan Project Manager
  - Information Technology and Communications (IT&C) Department
  - City Council Representatives
  - Department Management and Operational Staff
- External Stakeholders:
  - San Diego Data Processing Corporation (SDDPC)

- Science and Technology Commission
- Residents of the City of San Diego

10.1.6 Message Types

The following provides a description of the types of messages that will be used to communicate key IT Strategic Plan events and milestones.

- **Calendar of events** – The Communication Team will publish a calendar of events with a schedule of projects, initiatives, and key meetings
- **Monthly updates** – The ITGC will prepare monthly updates that communicate the status of Strategic Plan initiatives
- **Quarterly updates** – The ITGC will prepare a high level quarterly report that summarizes the current state of the Strategic Plan and its related initiatives. This report will focus on celebrating the successes and benefits gained from initiative implementation.

10.1.7 Communications Media

The Communication Team will use the following media to communicate information regarding the IT Strategic Plan.

- Electronic communication (e-mail and voice mail)
- Information letters/updates (monthly and quarterly)
- Meetings
  - Quarterly Managers Meeting
  - IT Steering Committee Meetings
  - Technical and Business Case Review Team Meetings
  - Business Center Leadership Monthly Meetings
- Presentations
  - City Council presentations on a semi-annual basis
  - Ad hoc presentations (e.g., National Management Association)
  - Updates to the Science and Technology Commission
- Surveys/Questionnaires
  - Citizen
  - End User
  - Employee
- Web site
- Intranet

10.1.8 Approval Process

The Communication Team will review and approve communications regarding the IT Strategic Plan.

10.1.9 Media Matrix

The following matrix summarizes how stakeholders will receive communications regarding the IT Strategic Plan.

Group/Organizations	Form of Communication						
	CIO	**ITGC**	**IT&C Director**	**Project Manager**	**New Program Manager**	**City Page**	**Directors Stay Informed**
City Council **S&T Council**	*One/One* Group Group						
ISA			Intranet Group	Intranet Group			
Executive Team **BCL**	Intranet	Group		E-mail E-mail, Intranet			
SDDPC **SanGIS** **ARJIS**	Group		Internet Internet Internet	Internet Internet Internet			
General Staff			Intranet		Intranet	Newsletter	
Pub/Media			Internet	Internet			Group
Independent IT							
Center City Development Corp. **Southeastern Economic Development**				Internet Internet		Newsletter Newsletter	Group Group
EDC **Housing Commission** **Convention Center**				Internet Internet Internet		Newsletter Newsletter Newsletter	Group Group Group

11. PERFORMANCE MEASURES

11.1 PERFORMANCE MEASURES

The City will use the following high level measures to track its performance as a result of the implementation of the IT Strategic Plan and its initiatives. These measures are designed to provide the City with an objective, reliable means of gauging the costs, performance and efficiencies of systems and processes. Where necessary and appropriate, the measures will be further defined between the City and its IT service providers (SDDPC and/or others). They are also designed to measure the effectiveness of IT on the City's internal and external processes and alignment of the IT organization with the business objectives of the City. Using the IT governance framework, a committee will be assigned to develop the mechanisms for measuring performance on an annual basis, including identification of the source(s) for each measure and the service delivery organization responsible.

- Customer Satisfaction (end users, citizens, businesses)
  - Improved functionality
  - Improved service delivery
  - Increased ease of use
- Project Implementation Success (overall from both IT and business perspectives)
  - Within budget
  - Within scope
  - Meets business requirements
  - Customer satisfaction
- Employee Satisfaction
  - Training
  - Skills alignment
  - Salary and benefits
- Reduced Costs Per Unit of Service as a Result of Improved IT Systems
  - Dollar savings on IT maintenance contracts
  - Dollar savings in overall operations of data center(s)
  - Performance measured against service level agreements
  - Cost per user
  - Cost per device
  - Dollar savings through volume procurements
  - Cost per customer transaction for delivering a specific service (e.g., a permit)
- Utilization of Standards
  - Resulting cost reductions
  - Successful development and implementation gauged by the number of exception requests
- Achievement of Business Objectives

- Cost-effective and responsive IT service delivery
- Consistent IT tools enabling employee productivity
- Improved knowledge management capabilities
- Improved data sharing and exchange capabilities
- Capability to deploy and support electronic service delivery channels
- Improved decision-making capabilities, including funding and investment allocation
- Increased efficiency of communication within and among departments (e.g., through Citywide access to e-mail at all staff levels)
- Improved wireless communications systems
- Enhanced customer service through single point access to City services
- Improved inventory-control systems to assist in accurate asset management.

Appendix A. IT ORGANIZATION AND GOVERNANCE

IT ORGANIZATION AND STAFFING: IMPROVING THE CITY'S IT ORGANIZATION

The City will improve its IT service delivery by establishing the roles and responsibilities and implementing the changes to the City's IT organization described below. Transition Plans will be developed and implemented to ensure that departments have confidence that their operational requirements will be met as roles and responsibilities shift between departments, SDDPC and other external vendors. Timing on sensitive projects will also be considered to ensure IT service is not disrupted as a result of a transition. Transition Plans will also ensure departments and IT&C are prepared to take on new roles and responsibilities as a result of changing relationships with SDDPC and other external vendors.

The changes in the IT Service Delivery organization fall into two areas.

Improve the Existing IT Organization - Clarify roles, establish City governance process, and change the City's relationship with SDDPC to a strategic partnership, implementing a customer/provider model

Change SDDPC's Role from Primary IT Service Provider to Broker of IT Services – As a strategic partner, SDDPC will focus on IT design and architecture, contract management, system integration, database management and legacy application support, and look at other options to provide non-strategic service delivery (e.g., data center operations) as the City's IT Broker

The City and SDDPC have agreed to the following delineation of primary responsibilities in delivering information technology. As the various initiatives in the Strategic Plan are implemented to meet the City's IT vision, goals and objectives, the roles will be based on these responsibilities. In addition, the Assistant City Manager will be an *ex-officio* member of the SDDPC Board of Directors, while SDDPC's CEO/President will be an *ex-officio* member of the City's IT Board.

City Responsibilities	SDDPC Responsibilities
Establish IT Policy Approve Standards IT Business Processes/Reengineering Project Management (Business)	Implement IT Policy Recommend Standards IT Operations Technical Project Management

Key roles and responsibilities of the IT service delivery organizations will be further clarified, documented, and communicated as follows:

- **Technology Services (CIO's Office)**
  - Focus on IT strategic direction for the City
    - » Establish and manage City IT strategic direction to help ensure attainment of City's IT vision and mission
    - » Lead public/private partnership efforts in IT
    - » Identify revenue opportunities for Citywide IT initiatives
  - Represent the City Manager to SDDPC

    - » Manage agreement
    - » Enforce IT service delivery performance metrics and provide feedback on alignment
  - – Establish IT operating budget for Citywide initiatives and make recommendations to City Manager
  - – Represent the City Manager to City Departments
  - – Selectively fund and sponsor Citywide IT projects
  - – SanGIS Board member
  - – Advise ARJIS, CCDC
  - – Coordinate with the Science and Technology Commission

- **Information Technology & Communications Department (IT&C)**
  - – Establish and manage City IT Program Management Office (PMO)
    - » Advise departments on guidelines
    - » Provide resources for Business Case development and review
    - » Provide project management resources to departments as appropriate
  - – Utilizing the IT governance framework, review, and enforce Citywide IT architecture, based on recommendations from SDDPC and approved by the ITGC
    - » Data, applications, technical infrastructure
  - – Provide maintenance and support services for wireless voice and data infrastructure
    - » Outsource as appropriate

- **San Diego Data Processing Corporation (SDDPC)**
  - – Responsible for IT operations
  - – Own IT assets, including the network, voice systems and data center
    - » Propose the design of a comprehensive Citywide IT architecture
    - » Architecture defines data, applications, and infrastructure and is guided by the City IT Strategic Plan
  - – Provide and/or oversee systems integration services
  - – Broker IT services
    - » Coordinate procurement and evaluation of IT service providers to ensure best business value to the City
    - » Provide overall contract management services
    - » Provide technical project management services
  - – Oversee IT service delivery to ensure it meets City's business needs and performance measures
    - » Provide legacy (mainframe) systems support and maintenance as necessary
    - » Provide and/or coordinate database management support

- **Department Information Systems (IT) Staff**
  - Focus on helping define the department's IT strategic directions in response to business and operational needs (i.e., define/oversee how IT can help department operations)
  - Develop and implement department IT Strategic Plan consistent with Citywide plan
  - Act as first point of contact for IT service delivery needs within department and determine next steps
    - » Provide Tier 1 support for applications and technical issues
    - » Coordinate IT service between department staff and SDDPC or other external service providers/vendors
  - Plan, prioritize, procure and monitor department-specific IT and communications systems
    - » Develop functional requirements
    - » Oversee procurement process
    - » Manage third-party contracts as necessary
    - » Utilize IT governance framework
  - Provide overall project management for department-specific IT projects
    - » Utilize City IT Program Management Office as appropriate

The following section describes the activities that will be conducted during the IT organization implementation tasks.

- **Improving the Existing IT Organization**
  - Guided by the IT organization framework established, specific roles and responsibilities will be clarified and documented for the CIO, IT&C, SDDPC and Department IT Staff:
  - The governance structure will be tested and modified to improve IT planning, budgeting, decision-making, and monitoring.
  - Improved communication processes, procedures and vehicles will be developed and implemented.
  - Personnel practices will be reviewed and modified where possible to improve hiring, training and retention of City IT staff.
  - SDDPC and the City will engage in strategic sourcing and partnering to improve IT service delivery (consistent with City's IT Strategic Plan and SDDPC's "*No Limits Initiative*").
  - The City will change its relationship with and the organization of SDDPC by pursuing the following activities:
    - » Where appropriate, the City will modify its Operating Agreement and Service Level Agreement with SDDPC, in line with strategic partnering, to reflect the customer/provider relationship with the customer (City) responsible for decisions

on IT services acquired from vendors through SDDPC. The Agreement(s) will clarify the City's role in City initiated partnerships.

- The City will work with SDDPC to ensure that IT decisions support the City's IT Vision of improving services to the public and improving internal City operations and management.
- The City will work with SDDPC to further develop SDDPC's customer-centric approach that will help improve IT services and demonstrate SDDPC's business value to the City.
- The City will administer SDDPC's contract as similar to other vendor contracts, establishing and monitoring clear service level agreements, including performance measures between and for both SDDPC and the City.
- The City will utilize the IT governance framework to develop clear performance measurements for delivery of IT services by SDDPC and other external service providers, as well as internal City IT staff.
- The business value SDDPC provides the City will be clarified.
- City IT staff (IT&C and Department IT staff) roles and responsibilities will shift their focus toward: IT planning, review and approval (IT Architecture, Data Management, etc.), procurement oversight, contract management of SDDPC, vendor management of SDDPC, and overall/business project management.

The following diagram summarizes these roles and responsibilities (with the 'X' showing the end source of the service, not the responsibility for managing a contractual service):

Improving the Existing IT Organization				
Primary Responsibility	**Department**	**Technology Services**	**SDDPC**	**External Providers**
Planning and Budgeting	X	X		
Procurement	X	X	X	
Overall/Business Project Management	X	X		
Technical Project Management			X	
Applications Support (application use & business process)	X	X		
Third-Party Vendor Management			X	
Infrastructure Design and Architecture			X	
Operations/Data Center*			X	X
Infrastructure Management	Tier 1 Support			
WAN			X	
LAN			X	

Improving the Existing IT Organization				
Primary Responsibility	**Department**	**Technology Services**	**SDDPC**	**External Providers**
Desktops (HW maintenance currently contracted)			X	X
Servers (HW maintenance currently contracted)			X	X
Applications Support* (programming/technical)			X	X
Applications Development*			X	X
Database Administration			X	
Help Desk Support			X	
Training and Development			X	

* SDDPC "*No Limits Initiative*" proposes looking at external partnerships & outsourcing.

- **Changing SDDPC's Role from Primary IT Service Provider to Broker of IT Services (within the context of a strategic partnership)**
  - SDDPC will be responsible for:
    - » Contract management
    - » Recruiting and hiring of key SDDPC IT staff (e.g., Enterprise Architect)
    - » Supporting legacy applications
    - » Database administration and management
    - » Systems integration (e.g., COTS applications into enterprise architecture)
    - » Outsourcing non-strategic service delivery (e.g., data center operations), including management of external contracts
  - Roles and responsibilities of City IT staff will be clearly defined and expertise will increase further in the following areas:
    - » IT planning (IT Architecture, Data Management, etc.)
    - » Procurement oversight
    - » Contract management of SDDPC
    - » Vendor management of SDDPC
    - » Overall/business Project management

The following diagram summarizes these roles and responsibilities (with the 'X' showing the end source of the service, not the responsibility for managing a contractual service):

Changing SDDPC's Role to IT Service Broker				
Primary Responsibility	**Department**	**Technology Services**	**SDDPC**	**External Providers**
Planning and Budgeting	X	X		
Procurement	X	X		
Overall/Business Project Management	X	X		
Technical Project Management			X	
Applications Support (application use & business process)	X	X		
Third-Party Vendor Management			X	
Infrastructure Design and Architecture			X	
Operations/Data Center				X
Infrastructure Management	Tier 1 Support			
WAN				X
LAN				X
Desktops				X
Servers				X
Applications Support (programming/technical)			X(Legacy)	X(New)
Applications Development				X
Database Administration/Management			X(Legacy/ New)	
Help Desk Support				X
Training and Development				X

The planning team which developed the IT Strategic Plan also discussed other options available if the City is unable to achieve the capabilities and improved IT services desired using the preferred service delivery model. If a competitive process were to determine that SDDPC did not provide the City with the best value, the City could consider using another external provider as its primary IT service broker.

IT Governance Bodies

The following subsections detail the composition and roles and responsibilities of each of the City's IT governance bodies that will be developed as part of the City's new IT governance framework.

- **IT Board –** The IT Board will consist of the following members who will meet on a quarterly basis: City Manager, Assistant City Manager (Chair), Deputy City Managers (including CIO), City Attorney, City Auditor & Comptroller, Personnel Director, Police Chief, Fire Chief and SDDPC's CEO (*ex-officio*). The Board will be responsible for the following activities:
  - Establish policy
  - Approve IT Strategic Plan
  - Approve proposed annual IT budget
  - Define and communicate City business goals and objectives
  - Build consensus between elected officials and appointed officials
  - Establish and support high-level IT initiatives

- **Chief Information Officer (CIO)** – The CIO (Deputy City Manager) will act as a liaison to the IT Board on behalf of the IT Governance Committee. The CIO will act as the ITGC Chair and will be responsible for developing and maintaining the Citywide IT Strategic Plan with support from ITGC. The CIO will also act as policy liaison to IT service providers. Through the Information Technology and Communications Department, the CIO will:
  - Define IT architectures and standards using technical recommendations from SDDPC
  - Provide staff support for project development and marketing research
  - Manage Citywide projects and initiatives (e.g., GIS, infrastructure, e-Government)
  - Manage relationships with service providers
  - Provide IT business support to departments without internal IT staff support

- **IT Governance Committee (ITGC)** – The ITGC will consist of approximately 20 members who will meet on a monthly basis. Representation on the ITCG will consist of the CIO/Deputy City Manager (Chair), Department Directors (Managerial Departments - 12), Executive Assistant to City Manager, Assistant City Attorney, Assistant Auditor & Comptroller, Assistant Police Chief, Deputy Fire Chief, Special Projects Manager and the SDDPC CEO or COO (*ex-officio*). Managerial department membership would be drawn from the Senior Deputy City Manager's area (5 members), Planning (1), Financial Management (1), IT&C (1), Community & Economic Development (1), Library (1), Real Estate Assets (1), and Human Resources (1). The Committee will be responsible for the following activities:
  - Review department IT Strategic Plans to ensure consistency with the overall City IT Strategic Plan

- Review and prioritize annual IT budget submittals
- Review and prioritize IT project proposals
- Approve Business Cases for Citywide IT projects and other IT projects greater than $500,000
- Review Business Cases that have been escalated
- Delineate Citywide, multi-departmental and single department initiatives
- Review information copies of all concept papers to maintain Citywide focus on IT
- Review project success measures and outcomes for major department and Citywide IT projects
- Coordinate communications back to departments
- Approve IT architectures and standards
- Create ad hoc technical teams
- Appoint staff resources to technical teams

- **Business Case Review Committee –** The Business Case Review Committee will consist of 13 members who will meet on an as needed basis, monthly at a minimum. Representation on the Business Case Review Committee will consist of seven representatives from various City departments, three IT&C representatives representing Citywide programs, one representative from the Auditor & Comptroller, one representative from the CIO and one representative from SDDPC (COO or VP of Client Relations). Department representatives are assigned as follows:
  - At least 2 representatives from enterprise funds
  - At least one member from each DCM & Assistant City Manager
  - At least one member from independent departments (Attorney, City Clerk, Personnel)
  - Assignments rotate every two years

  The Committee will be responsible for the following activities:
  - Perform initial project screening
  - Review Business Cases and identify Citywide issues and/or opportunities for projects/initiatives less than $100,000 and inform department director
  - Review business cases, approve/object and inform ITGC of results for projects/initiatives costing between $100,000 – $500,000
    - » The Committee will provide guidance and facilitate the business case review process and work cooperatively with departments
    - » Procedures and evaluation criteria involved in making decisions about the business case will be developed and clarified with departments
    - » Escalation procedures are included in governance structure concerning any decisions (see diagram in Section 6, sub-section 6.3)

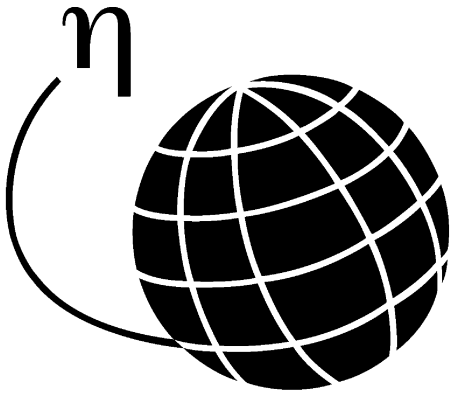
- Evaluate business cases and make recommendations to ITGC for projects/initiatives costing greater than $500,000
- Provide written responses back to originating departments on all Business Cases

- **Technical Advisory Committee –** The Technical Advisory Committee (TAC) will consist of 18 members who will meet on an as needed basis, monthly at a minimum. Representation on the Technical Advisory Committee will consist of Financial Management, a CIO Representative, IT&C, Economic Development & Community Services, Library, Police, Fire & Life Safety, Planning, Human Resources, Development Services, Engineering & Capital Projects, Environmental Services, Metropolitan Wastewater, Park & Recreation, Water, Independent Departments (1 from Attorney/Auditor/Clerk/Personnel), and SDDPC (CTO). This committee will advise the ITGC on IT architecture and standards, provide technical review and advice on projects referred by the Business Case Review Committee or ITGC, and ensure that departmental IT initiatives are consistent with approved City architectures and standards. It will also coordinate communications with technical subcommittees and work teams.

- **Technical Subcommittees and Work Teams –** There are three technical subcommittees formed (GIS Advisory, Wireless Infrastructure and Internet Strategy/e-Gov) to focus on key technology areas and additional ad hoc teams will be created as needed to conduct technical analysis to support business needs (e.g., Desktops, Infrastructure, Office Automation). Subcommittees and technical teams will be made up of appropriate technical area experts and will review alternatives and prepare recommendations for review by the TAC and ITGC. SDDPC and other service providers can participate as appropriate.

- **Departments –** Departments will support the governance structure by conducting the following activities:
  - Develop and maintain department IT Strategic Plans consistent with the overall City IT Strategic Plan
  - Advocate for and sponsor projects
  - Develop IT project proposals following Business Case guidelines
  - Own and provide overall management of IT projects that are department-specific
  - Define and monitor project accountability and success measures
  - Respond to prioritization issues raised by ITGC
  - Identify IT costs for all ongoing support and new development as part of annual budget submittal
  - Submit project concepts for major enhancements and new development as part of the annual budget submittal

Appendix B. SAN DIEGO CITIZEN SURVEY RESULTS



Godbe Research & Analysis

Resident Opinion Survey

Conducted for the City of San Diego
December 2000

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Introduction

Godbe Research & Analysis (GRA) is pleased to present the results of a public opinion research project conducted for the City of San Diego. This report is organized into the following sections:

Executive Summary

The *Executive Summary* includes a summary of the *Key Findings* from the survey and a *Conclusions & Recommendations* section that discusses the findings and provides additional insight with respect to the research objectives of the study.

Methodology

The *Methodology* section describes the procedure followed to conduct this study. This section also explains sampling error and how to read the detailed cross-tabulation tables in Appendix B.

Summary of Results

In the body of the report, we present a question-by-question analysis of the survey. The discussion is organized into the following sections:

- Access and Use of Technology
- Computer Access
- Access and Use of the Internet
- Access and Use of City's Website
- Proposed Online Services
- General Demographics

Appendices

We have included the following three *appendices*:

- *Appendix A,* which presents the questionnaire and topline data.
- *Appendix B,* which presents the crosstabulations.

Executive Summary

Key Findings

Based on an analysis of the survey data, GRA offers the following key findings:

71% of San Diego households have computers and 88% have access to computers

A series of questions was designed to assess San Diego residents' access to, and use of, technology. Respondents were asked to indicate whether or not they had access to a variety of electronic devices in their home. Nearly all respondents had access to a television (98%), and most reported they had cable television (82%). Nearly three-fourths of the respondents (71%) indicated they had access to a computer in their home, and an additional 17 percent responded that they had access to a computer outside their home. More than half the respondents (59%) had access to a cellular phone, and about one-third (32%) reported that they had two or more phone lines in their home.

Home computer access is higher in the northern and coastal areas

Residents in the northern (north of Interstate 8) and coastal (west of Interstate 5) areas of the City had, on average, more access to most of the electronic devices tested in the survey. In particular, home access to computers was higher in the northern (80%) and coastal (75%) areas than in the southern (63%) and central (60%) areas. For comparison purposes, the U.S. Census Bureau's Current Population Survey (CPS) reported that 51 percent of the households in the United States had access to a personal or laptop computer in August 2000. The CPS survey reflected slightly higher access to computers (57%) in California and in metropolitan statistical areas comparable in size to San Diego.

63% of San Diego households are online and 32% of connected home computers have high-speed access

Respondents who had access to a computer in their homes were asked if their computer was connected to the Internet. Eighty-nine percent of the computers in the home had an Internet connection, which means that 63 percent of San Diego households are now online. A slightly higher percentage of residents in the coastal and northern areas reported a home Internet connection than those in the central and southern areas. Almost one-third of home computers with Internet connections have high-speed connections (32%), using primarily cable modems (27%) and digital subscriber lines (4%). Individuals in the coastal area were the most likely to have a cable modem connection and those in the southern area were slightly more likely to indicate they had a DSL connection.

41% of those without computers say they do not need them

Several questions probed respondents' access to computers and the Internet. Respondents who did not have access to a computer at home were asked to indicate a reason. The most common response cited was that the individual felt they had no need (41%). Thirty-one percent indicated that the cost of a new computer was the major factor. Seven percent indicated they had access to a computer elsewhere and another seven percent said they lacked the essential knowledge to operate a computer.

36% of those without home Internet access say they do not need it nor want it

The 11 percent of individuals who indicated their home computer was not connected to the Internet were also asked the reason. About one-third of the respondents (36%) indicated they had no need or desire to access the Internet. Several (18%) cited the cost of an Internet connection as the main reason, while a small number noted technical difficulties with their home computer (6%) or inadequate connection speeds available (4%).

17% of those who don't have access to a home computer are able to get access through libraries.

All respondents were asked if they had access to computers at locations outside their home. Many individuals indicated they had access to a computer at their work or office (45%), 16 percent said they had computer access at a friend's or relative's house, and 14 percent said they accessed a computer at school. Approximately one-third (31%) stated they had no computer access outside their home, although 61 percent of this group reported they had access to computer at home. Residents who did not have access to a computer at home are provided access primarily through friends and relatives (24%), work (23%) and/or libraries (17%). Individuals who were least likely to have access to a computer either at home or elsewhere were those in the central and southern areas of the City, those over the age of 60, individuals with less than a high school degree, Latinos, and particularly those who completed the interview in Spanish.

71% of San Diegans currently use the Internet

All respondents were also asked to indicate their use of various electronic services. Seventy-one percent said they currently used the Internet, which is just slightly less than the number reporting they used ATMs (75%). Internet use was highest among those in the northern and coastal areas (77%), men, those with a household income over $60,000, caucasians, those who completed the interview in English, and those under the age of 50.

59% of Internet users access government information online

Those who indicated that they currently accessed the Internet were asked to indicate what they had used the Internet for in the past year. Up to three verbatim responses were recorded for each respondent. Approximately three-fourths of the respondents (74%) mentioned 'communication', such as email and chatting, as a task they performed on the Internet. Information searches related to 'government' was the next most popular activity (59%). Academic and education-related research (39%), shopping (38%), and entertainment, such as music, videos, and games (36%) were the next most frequently cited activities.

93% of those with Internet access use email and 58% shop or make purchases online

Internet users were presented with a set of 11 Internet technologies and services and asked to indicate whether or not they had used each in the past year. Nearly all individuals with Internet access indicated they had used email (93%). Fifty-eight percent said they had shopped or made a purchase online, and 55 percent said they had made travel arrangements or bought travel tickets online. Individuals in the coastal and northern areas were more likely to have used nearly all of the Internet technologies and services tested than those in the central and southern areas.

The majority of respondents (63%) said they actively used the Internet between one and ten hours per week and nearly all respondents had at least one year of Internet experience (89%). A large percentage indicated having between one and three years experience (45%). Overall, those in the coastal and northern areas tended to have greater Internet experience than those in the central and southern areas.

32% of Internet users have accessed the City's website

Several questions asked residents with Internet access about their experiences with the City of San Diego's website. Thirty-two percent of respondents with Internet access indicated they had visited the City's website in the last 12 months and two-thirds (66%) had not. Those most likely to have visited the City's website in the last 12 months were Latinos, and especially those who elected to take the interview in Spanish, those in the coastal and northern areas, individuals with higher household incomes, residents of less than three years, and those who were employed or a homemaker.

With respect to the frequency of visits to the City's website, a combined 62 percent indicated they accessed the City's website either monthly (26%) or several times per year (36%). Sixteen percent said they accessed it either daily (4%) or weekly (12%).

The most frequent activity performed on the City's website is 'accessing event calendars'

Respondents who indicated they had accessed the City's website were presented with a series of 19 different website items and services and asked to indicate whether or not they had ever accessed each of them. Sixty-three percent indicated they had accessed information concerning 'event calendars'. Fifty-eight percent said they had accessed information on 'parks and recreation centers', and 51 percent had accessed information regarding 'job opportunities' on the website. Accessing Library information was also a popular activity (44%). Although residents in the central and southern areas were typically less likely to have visited the City's website, the range of activities they performed while on the site seemed to be somewhat broader than those in the coastal and northern areas.

Proposed Online Services

Residents' perceived usefulness of a wide variety of proposed online services was tested. The items were divided into four general categories and presented as separate sets of proposed services.

General City Information: Overall, residents rated 'Locations, service hours, and maps for City facilities such as parks, libraries, and police stations', 'Residential service schedules for your area such as trash pickup, street sweeping, and water meter reading', and 'Community information such as nonprofit and community organization activities' as the most useful online services related to general City information.

City Services: The proposed online City services that received the highest overall 'usefulness' ratings were 'Request City services such as streetlight repair, road sign repair, or missed trash pickup, and check the status of your request online', 'Check your water bill or meter reading

online', and 'Convenient access to information and services provided by other government agencies, such as County and state governments'.

City Employment Services: Though only two services were tested within this category, both received ratings that were comparable to the top-ranked items of the other three categories. 'Apply for City jobs online' and 'Download application forms and detailed instruction sheets for City jobs online, with applications returned by mail' received nearly identical 'usefulness' ratings, overall.

Public Participation Services: The three public participation services that received the highest overall 'usefulness' ratings were 'Submit reports or complaints online, as well as check the status of the report or complaint', 'Vote online', and 'Receive email alerts when a specific subject you are interested in is discussed at a Council meeting'.

Across all proposed online services tested, those who had visited the City's website in the last 12 months had a tendency to assign a higher level of usefulness to the services than those who did not. Generally, the more access an individual had to the website (considering Internet access and computer access at home or elsewhere), the more 'useful' they rated the various proposed services. In general, those in the central and southern areas assigned a higher level of usefulness to the majority of the proposed online services than individuals in the coastal and northern areas.

Conclusions & Recommendations

The coastal and northern areas tend to have greater access to and use of electronic services

Differences in access to and use of technology existed between the four geographical areas of the City for nearly all topics investigated in this study. Specifically, those in the coastal and northern areas tended to have greater access to home electronic devices, such as cable television, computers and fax machines. Individuals in these areas also reported greater use of electronic services such as ATMs, debit cards and banking by phone, as well as specific technologies such as email, shopping online, and streaming audio and video.

These differences can be attributed to many variables at the individual level and household level, as well as the geographic level. In recent years, the term *digital divide* has been used to refer to the 'gap' between those who can effectively access and utilize technologies, such as the Internet, and those who cannot. Although a consensus does not exist on the extent of the divide, hundreds of studies have identified that some sort of divide exists through the United States and the world.

Research conducted by the U.S. Department of Commerce has found that individuals with higher household income levels and education levels are more likely to use the Internet. Ethnicity has also been identified as a large factor. For example, nationwide, Caucasians are more likely to have Internet access in their home than Latinos are to have access from *any*

location. Even when holding household income and education constant, the digital divide persists between distinct ethnic groups.

The findings of *this* study suggest that the regional differences in technology access and use within the City of San Diego are closely related to the same components that affect the digital divide.

Opportunities for the City

Although individuals in the central and southern areas were less likely to have visited the City's website, the variety of information and services they accessed while on the website was in many cases wider than those in the northern and coastal areas. Moreover, those in the central and southern areas perceived the majority of the services the City could potentially offer online as more useful than did those in the northern and coastal regions. The study found that the use of 'newsgroups or chat groups' was considerably higher in the central and southern areas, suggesting an opportunity for the City to reach these individuals through electronic communities. As the City moves forward in offering online services it should keep in mind the regional differences when prioritizing projects.

The study findings also offer insight into specific online services that appealed to select groups of individuals. These may represent 'untapped markets' for the City with respect to increasing overall resident satisfaction. For example, the study found that those between the ages of 18 and 25 considered several of the public participation services to be quite useful. Additionally, students overall assigned very high 'usefulness' ratings to the proposed online employment services. These findings suggest excellent opportunities to increase the involvement of the City's youth in local government.

Methodology

Research Objectives

At the outset of this project, the City of San Diego and GRA identified several research objectives for this study. Viewed broadly, the City of San Diego was interested in using survey research to:

- determine residents' access, capabilities, and perceptions regarding technology such as computers, telephony, television, and the Internet;
- identify differences in residents' technology access, capabilities, and perceptions with respect to the geography of the City of San Diego;
- examine residents' use of the City's website and online services;
- evaluate interest in the availability of select City services and information via the Internet *and*
- gather additional demographic, attitudinal, and behavioral information to profile City residents.

Sample and Weighting

Table 1 briefly outlines the methodology employed in this project. As the research objectives involved issues that concerned the entire City of San Diego community, it was determined that the most appropriate sampling methodology would be to interview a sample of community residents, rather than examining a more specialized subsample, such as a sample of registered voters. Respondents were selected using random digit dialing (RDD), which randomly selects phone numbers from the active residential phone exchanges in the City of San Diego.

Table 1. Methodology Overview

Technique	Telephone interviewing
Universe	Adult residents of the City of San Diego
Field Dates	November 16 through December 5, 2000
Interview Language	English and Spanish
Interview Length	12 minutes
Sample Size	1600

Because of the research objectives underlying this study and the City of San Diego's interest in being able to make reliable estimates of opinions not only city-wide, but also within separate areas of the City, the sampling frame was designed to strategically over-sample residents from select areas of the City with somewhat smaller populations.

Figure 1 and Table 2 below outline the areas of the City that were defined for comparison purposes in this study. Specifically, 250 interviews were completed in the *Southern region* of the City, 350 in the *Coastal region*, 500 in the *Northern region*, and another 500 in the

Central region. The data were then weighted to adjust for the strategic over-sampling that occurred within the regions and weighted by ethnicity to accurately portray the ethnic makeup within the four regions that were defined in the City of San Diego[i]. The resulting data are representative of the overall adult resident population of San Diego. Figure 1 identifies the general boundaries that define the four regions within San Diego. Table 2 presents the zip codes that were used to establish and define the four regions for this study.

Figure 1. Map Identifying General Boundaries of Regions

Table 2. Zip Codes that Define Regions

Coastal	Northern		Central	Southern
92037	92025	92126	92102	92154
92101	92027	92127	92104	92173
92103	92108	92128	92105	
92106	92110	92129	92113	
92107	92111	92130	92114	
92109	92117	92131	92115	
92133	92119	92145	92116	
92140	92120	92196	92136	
	92121	92197	92139	
	92122	92198	92182	
	92123	92199		
	92124			

[i]GRA used 1999 SANDAG projection data to acquire the ethnic distribution within each zip code, then aggregated the zip code and ethnicity information according to the four areas within the City of San Diego.

To determine if an individual was qualified to participate in the study, interviewers first asked potential respondents a series of questions, referred to as *screeners*. The screeners ensured that the person lived within the City of San Diego limits and they were at least 18 years old. A screener was also used to correct one of the inherent tendencies of the RDD method to over-sample older residents and women. More specifically, RDD samples typically overrepresent women and older residents because they are often more likely to be home in the early evening or on the weekend and are also more likely to answer the telephone. To adjust for this bias, interviewers asked to speak to the youngest male in the household. If the youngest male was not available at the time of the call, the interviewer asked to speak to the youngest female.

The resident population of the City of San Diego is comprised of a significant number of Spanish-speaking individuals. To ensure that monolingual Spanish-speaking residents, and those more comfortable speaking Spanish than English, in the City would be represented in the sample, interviewers fluent in Spanish were available throughout the course of the interviewing process. Seventy-six of the 1600 interviews were completed in Spanish (after weighting the data, Spanish interviews accounted for 92 total responses).

Naming Labels

The following labels are referred to frequently in the substantive section of the report:

Table 3. Naming Labels

Age	Individuals were grouped into one of the following age brackets: '18 to 25', '26 to 39', '40 to 49', '50 to 59', and '60 +'.
Computer Access	Respondents who reported not having access to a computer at home nor elsewhere were identified:
Computer at Home	Respondents indicated whether or not they currently have a computer at their home.
Education	Individuals were grouped into six categories based on their education level: 'Less than High School', ''High School Graduate', 'Trade School', 'Some College', 'College Graduate', and 'Graduate Degree'.
Employment Status	Individuals were grouped based on their employment status: 'Employed' (full-time, part-time, or self-employed), 'Student', 'Homemaker', 'Retired', and 'Not employed'.
Ethnicity	Respondents indicated the ethnic group that they felt closest to and were then grouped as: 'Asian-American or Other', 'African-American', 'Caucasian', and 'Latino(a)'.
Gender	Male and female respondents were identified by their appropriate labels.
Home Internet Connection	Respondents indicated whether or not their computer at home was connected to the Internet.
Home Ownership	Individuals were grouped according to whether they rent or own their home.

Table 3. Naming Labels

Household Income	Residents indicated their total household income before taxes in 1999: 'Less than $20K', '$20K to $40K', '$40K to $60K', '$60K to $80K', $80K to $120K', and '$120K +'.
Internet Access	Respondents indicated whether they currently use the Internet.
Internet Hours per Week	Respondents indicated how many hours per week on average they spent using the Internet.
Interview Language	The language in which the interview was conducted was indicated: 'English' and 'Spanish'.
Phone Lines in Home	Respondents indicated how many phone lines or numbers they had in their home and were grouped as 'One', 'Two', 'Three' and 'Four +'
Region	Individuals were grouped according to their zip code. The City was split into four quadrants: Central, Coastal, Northern, and Southern (see Table 2 on page 8).
Visited City's Website	Respondents indicated whether or not they had visited the City of San Diego website in the last 12 months.
Years of Internet Experience	Respondents indicated how long they had been using the internet and were grouped as 'Less than 1', '1 to 3', '4 to 5', and '6 +'.
Years of Residence	Respondents were grouped according to the number of years they have lived in the City of San Diego: 'Less than 1', '1 to 2', '3 to 5', '6 to 10', '11 to 15', and '15 +'.

Randomization of Questions

To avoid the problem of systematic position bias - where the order in which a series of questions is asked influences the answers to the questions - several of the questions in this survey were randomized such that respondents were not consistently asked the questions in the same order. The series of items within questions 11, 16, 17, 18, 19, and 20 were randomized for each interview.

Understanding the 'Margin of Error'

Because a survey only interviews a limited number of people who are part of a larger population group, by mere chance alone there will almost always be some difference between a sample and the population from which it was drawn. For example, researchers might collect information from 400 adults in a town of 25,000 people. Because not all people in the population were surveyed, there are likely to be differences between the results obtained from interviewing the sample respondents and the results that would be obtained if all people in the population were interviewed. These differences are known as 'sampling error' and they can be expected to occur regardless of how scientifically the sample has been selected. The advantage of using a scientifically drawn sample, however, is that the maximum amount of sampling error can be determined based on four factors: the size of the population, the cho-

sen sample size, a confidence level and the dispersion of responses to a survey question. Of the four factors, sample size is the most influential variable.

Table 4 shows the possible sampling variation that applies to a percentage result reported from a probability-type sample. The table shows that if a sample of 1,600 respondents is randomly drawn from the estimated 926,000 *adult* residents[ii] in the City of San Diego, one can be 95 percent confident that the margin of error, due to sampling, will not vary by more than the indicated number of percentage points (plus or minus) from the result that would have been obtained if the interviews had been conducted with all people in the universe represented in the sample.

As the table indicates, the maximum margin of error for all aggregate responses is between 1.47 and 2.45 percent for the sample of 1600 adult residents. This means that for a given question answered by all respondents, one can be 95 percent confident that the difference between the percentage breakdowns of the sample population and those of the total population is no greater than 2.45 percent. The percent margin of error applies to both sides of the answer, so that for a question in which 50 percent of respondents said yes, one can be 95 percent confident that the actual percent of the population that would say yes is between 52.45 percent and 47.55 percent.

The actual margin of error for a given question in this survey depends on the distribution of the responses to the question. The *2.45 percent* refers to questions, such as a 'yes or no' question, where opinions are evenly split in the sample with 50 percent of respondents saying yes and 50 percent saying no. If that same question were to receive a response in which ten percent of respondents say yes and 90 percent say no, the margin of error would be no greater than 1.47 percent. As the number of respondents in a particular subgroup (e.g., gender or age) is smaller than the number of total respondents, the margin of error associated with estimating a given subgroup's responses will be higher. For this reason GRA cautions referencing subgroups with *fewer* than 25 respondents.

[ii]This figure was estimated based on the 1999 SANDAG projection of the total population of the City of San Diego.

Table 4. Margin of Error

	Distribution of Responses				
N	90%10%	80%20%	70%30%	60%40%	50%50%
4000	0.93%	1.24%	1.42%	1.52%	1.55%
3600	0.98%	1.30%	1.49%	1.60%	1.63%
3200	1.04%	1.38%	1.59%	1.69%	1.73%
2800	1.11%	1.48%	1.70%	1.81%	1.85%
2400	1.20%	1.60%	1.83%	1.96%	2.00%
2000	1.31%	1.75%	2.01%	2.14%	2.19%
1600	1.47%	1.96%	2.24%	2.40%	2.45%
1200	1.70%	2.26%	2.59%	2.77%	2.83%
800	2.08%	2.77%	3.17%	3.39%	3.46%
400	2.94%	3.92%	4.49%	4.80%	4.90%

How to Read a Cross-tabulation Table

The questions discussed and analyzed in this report comprise a subset of the various cross-tabulation tables available for each question. Only those subgroups that are of particular interest or that illustrate a particular insight are included in the discussion on the following pages. Should readers wish to conduct a closer analysis of subgroups for a given question, the complete breakdowns appear in Appendix B. These cross-tabulation tables provide detailed information on the responses to each question by all demographic groups that were assessed in the survey.

An example cross-tabulation table is shown below in Table 5. A short description of the item appears at the top of the table. The number of respondents to whom the question was administered (in this example, $n = 1605$) is presented in the first column of data under 'Overall'. In many cases, the number of individuals to whom the question was administered is equal to the entire sample size. However, in some cases a question is only administered to a subset of the sample if appropriate. The results to each possible answer choice of all respondents are also presented in the first column of data under 'Overall'. The aggregate number of respondents in each answer category is presented as a whole number and the percentage of the entire sample this number represents is just below the whole number. For example, among respondents overall, 1135 people indicated 'Yes'- they currently used the Internet, and 1135 represents 70.7% of the 'Overall' column. Next to the 'Overall' column are other columns representing opinions of male and female respondents. The data from these columns are to be read in exactly the same fashion as the data in the 'Overall' column, although each group makes up a smaller percentage of the entire sample.

Table 5. Example: Internet Use by Gender

	Overall	Gender	
		Male	Female
Base	1605	793	812
Yes	1135 70.7%	601 75.8%	533 65.7%
No	465 29.0%	189 23.9%	276 34.0%
DK/NA	5 0.3%	3 0.3%	3 0.3%

Understanding a 'Mean'

Several results in this report are discussed with respect to a descriptive 'mean'. Means are simply averages of the overall responses to a particular question. To derive a mean that represents perceived usefulness of proposed online services related to City information (Question 17), for example, a number value is first assigned to each response category. Respondents were asked to indicate on a scale of 1 to 5 how useful they felt the proposed services were, so in this case, 'Not at all Useful' = +1 and 'Very Useful' = +5, and responses of +2, +3 and +4 were assigned accordingly. The answer from each respondent is then assigned the corresponding number (from +1 to +5 in this example), with the exception of respondents offering a 'don't know' or 'no answer', who are excluded from the analysis. Finally, all respondents' answers are averaged to produce a final number that reflects the average perceived usefulness of the service. Means always adhere to the scale used for the question (see Table 6, page 13) and can be interpreted accordingly.

How to Read a 'Means' Table

In several figures and tables included in the report and Appendix B, mean scores are used to represent the data. As discussed above, these mean scores represent the average response of each group. The table below references the scale used for each corresponding question. Please note that responses of 'don't know' and 'no answer' are not included in calculating the means for any question.

Table 6. 'Means' Questions and Corresponding Scales

Question	Measure	Scale	Values
17, 18, 19, 20, 21	Perceived usefulness of proposed online services	1 to 5	1 =Not at all Useful 2 3 4 5 =Very Useful

A Note on the Tables

To present the data in the most accurate fashion, we display many of the results to the first decimal point in the tables and figures. For the purposes of discussion, however, conventional rounding rules are applied, with numbers that include .5 or higher rounded to the next highest whole number and numbers that include .4 or lower rounded to the next lowest

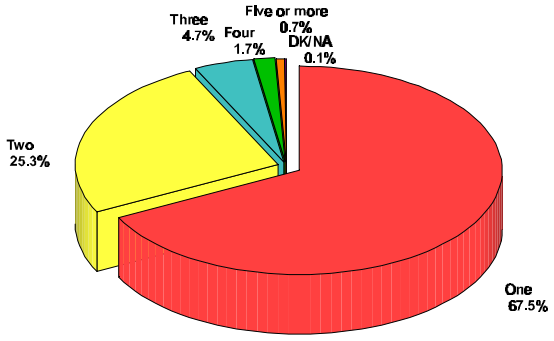
whole number. Because of this rounding, the reader may notice that percentages in the discussion may not sum to 100 percent due to rounding conventions. Moreover, the decimal numbers shown in pie charts may vary somewhat from the decimal numbers shown in the tables due to software requirements that pie charts sum to exactly 100 percent. These disparities are confined to the first decimal place. Additionally, because weighting the data (see "Sample and Weighting" on page 7 for a discussion) involves assigning precise weights to the data that are carried out to the fifth decimal place, rounding the results (in terms of 'number of respondents') to a whole number is required to meaningfully discuss the findings of the study. Thus, the reader should note that after weighting, the total number of respondents depicted in the data set is 1605.

Access and Use of Technology

Q1. How many phone lines or numbers do you have in your home?

A series of questions was designed to assess San Diego residents' access to, and use of, technology. The first of these questions asked respondents to indicate the number of phone lines or numbers in their home. As the figure below indicates, the vast majority of individuals (93%) reported having one (68%) or two (25%) telephone lines in their home.

Figure 2. Number of Phone Lines in the Home



The tables below present the responses to Question 1 with respect to region and household income. Respondents in the Coastal region were the most likely to have more than two lines in their home, and those in the Central region were the most likely to have only one line. As one might expect, the number of phone lines in the home was positively related to the total household income.

Table 7. Phone Lines in Home by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	1605	259	682	542	122
One	1083 67.5%	172 66.5%	445 65.3%	386 71.2%	80 65.2%
Two	406 25.3%	63 24.2%	190 27.8%	117 21.6%	37 30.2%
Three	75 4.6%	20 7.6%	29 4.2%	21 3.9%	5 4.3%
Four	27 1.7%	3 1.1%	13 1.9%	11 2.0%	0 0.2%
Five or more	11 0.7%	2 0.6%	4 0.5%	6 1.0%	- -
DK/NA	2 0.2%	- -	1 0.2%	1 0.2%	- -

Table 8. Phone Lines in Home by Household Income

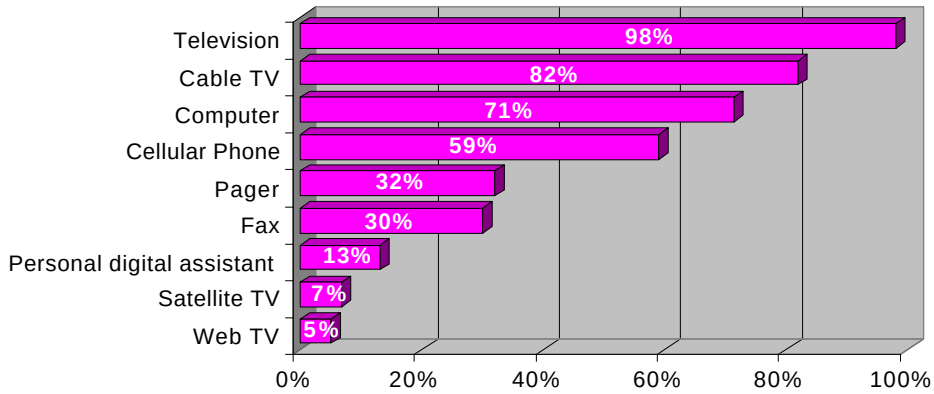
	Overall	Household Income					
		$20K or less	$20K to $40K	$40K to $60K	$60K to $80K	$80K to $120K	$120K +
Base	1605	170	345	246	146	146	75
One	1083 67.5%	143 84.1%	264 76.6%	167 68.0%	88 60.3%	75 51.5%	23 30.9%
Two	406 25.3%	23 13.5%	65 18.7%	64 25.8%	45 31.0%	56 38.6%	40 53.3%
Three	75 4.6%	4 2.3%	12 3.6%	12 5.0%	10 6.7%	5 3.3%	6 8.3%
Four	27 1.7%	0 0.2%	1 0.3%	3 1.2%	2 1.1%	8 5.3%	3 4.3%
Five or more	11 0.7%	- -	2 0.5%	- -	1 0.8%	1 0.5%	2 3.3%
DK/NA	2 0.2%	- -	1 0.4%	- -	- -	1 0.8%	- -

Q2. As I read each of the following electronic devices, please tell me if you have access to the device in your home.

In Question 2, respondents were read a list of electronic devices and asked to indicate whether or not they had access to the device in their home. The order of the items was randomized between individuals to avoid a systematic position bias. The figure below presents the percentage of respondents who indicated they had access to each of the devices in their home.

Nearly all respondents indicated they had access to a television in their home (98%), and most reported they had cable television (82%). Nearly three-fourths of the respondents (71%) indicated they had access to a computer in their home. A combined 12 percent indicated they had satellite television (7%) or Web TV (5%).

Figure 3. Electronic Devices in the Home



The three tables below look at usage of the various electronic devices with respect to region, education, ethnicity, and interview language. Those in the Coastal and Northern region had, on average, more access to most of the devices tested in the survey. In particular, access to computers was considerably higher in both of these regions compared with the Central and Southern regions. There was a strong relationship between level of education and home access to the various electronic devices as well. For most devices, those with a higher level of education were more likely to have home access compared with those with a lower level of education. Individuals who reported attending a trade school had a considerably higher level of access to satellite television and Web TV than individuals who had not attended a trade school. Latinos reported a somewhat lower level of access to all electronic devices with the exception of 'cellular phones', and those who completed the survey in Spanish reported the lowest levels of access overall.

Table 9. Electronic Devices by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Q2a Television	98%	98%	98%	98%	100%
Q2b Cable TV	82%	81%	90%	74%	75%
Q2f Computer	71%	75%	80%	60%	63%
Q2d Pager	59%	60%	64%	53%	56%
Q2e Cellular phone	32%	27%	30%	36%	39%
Q2i Fax	30%	33%	35%	24%	25%
Q2g Personal Digital Assistant	13%	10%	16%	12%	9%
Q2c Satellite TV	7%	7%	5%	8%	8%
Q2h Web TV	5%	7%	3%	7%	8%

Table 10. Electronic Devices by Education

	Overall	Education					
		Less than H.S.	H.S. Graduate	Trade School	Some College	College Graduate	Graduate Degree
Q2a Television	98%	95%	99%	100%	98%	99%	98%
Q2b Cable TV	82%	51%	80%	83%	84%	88%	86%
Q2f Computer	71%	35%	55%	63%	76%	85%	87%
Q2d Pager	59%	40%	53%	55%	64%	64%	62%
Q2e Cellular phone	32%	29%	34%	31%	37%	32%	23%
Q2i Fax	30%	14%	21%	14%	31%	39%	42%
Q2g Personal Digital Assistant	13%	9%	9%	12%	13%	16%	19%
Q2c Satellite TV	7%	4%	8%	17%	6%	7%	5%
Q2h Web TV	5%	2%	3%	23%	7%	7%	1%

Table 11. Electronic Devices by Ethnicity and Interview Language

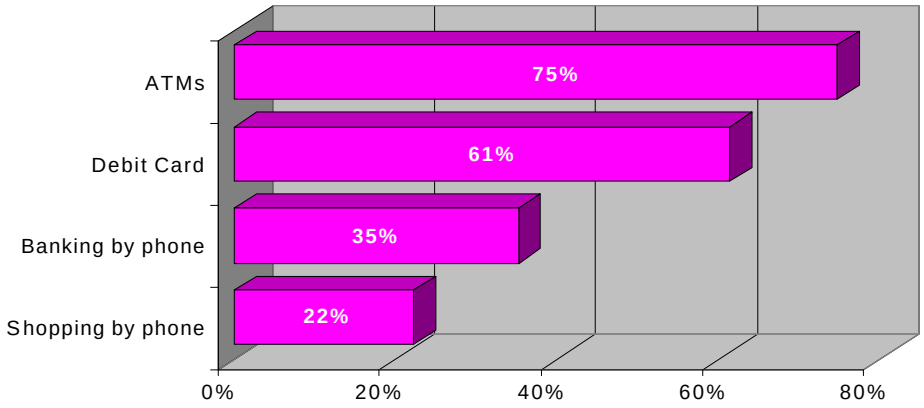
	Overall	Ethnicity				Interview Language	
		African-Am.	Asian-Am. / Other	Caucasian	Latino(a)	English	Spanish
Q2a Television	98%	98%	97%	98%	99%	98%	100%
Q2b Cable TV	82%	84%	81%	87%	71%	83%	59%
Q2f Computer	71%	64%	74%	78%	57%	72%	57%
Q2d Pager	59%	70%	66%	61%	49%	60%	44%
Q2e Cellular phone	32%	45%	43%	26%	36%	33%	22%
Q2i Fax	30%	32%	30%	34%	20%	31%	19%
Q2g Personal Digital Assistant	13%	17%	15%	14%	10%	14%	2%
Q2c Satellite TV	7%	7%	9%	5%	8%	7%	1%
Q2h Web TV	5%	5%	3%	2%	14%	3%	50%*

*After investigation of the responses to this question, GRA believes that because there is not a direct Spanish translation for *Web TV,* many of the Spanish-speaking respondents misinterpreted this question as asking only about *web* access, rather than *Web TV* access. Readers should keep this fact in mind when evaluating this particular item.

Q8. As I read each of the following electronic services, please tell me if you currently use the service?

Question 8 asked respondents to indicate their use of various electronic services. The figure below presents the percentage of respondents who indicated use of the four services tested. Seventy-five percent said they currently used ATMs and 61 percent reported 'Paying by debit card at stores or gas stations'.

Figure 4. Use of Electronic Services



The following two tables profile the responses according to the respondents' region, ethnicity, and interview language. Use of all four services was somewhat lower in the Southern region than the other three regions. Use of the devices across ethnicity was generally consistent. A lower percentage of individuals who interviewed in Spanish reported using ATMs and debit

cards, compared with those who interviewed in English, although a larger percentage indicated they shopped by phone.

Table 12. Use of Electronic Services by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Q8a ATM	75%	76%	78%	72%	67%
Q8b Debit card	62%	62%	64%	59%	57%
Q8c Banking by phone	35%	39%	37%	33%	28%
Q8d Shopping by phone	22%	26%	25%	19%	18%

Table 13. Use of Electronic Services by Ethnicity and Interview Language

	Overall	Ethnicity				Interview Language	
		African-Am.	Asian-Am. / Other	Caucasian	Latino(a)	English	Spanish
Q8a ATM	75%	71%	75%	79%	71%	76%	59%
Q8b Debit card	62%	58%	67%	64%	55%	63%	42%
Q8c Banking by phone	35%	33%	37%	36%	34%	36%	31%
Q8d Shopping by phone	22%	19%	20%	26%	18%	22%	31%

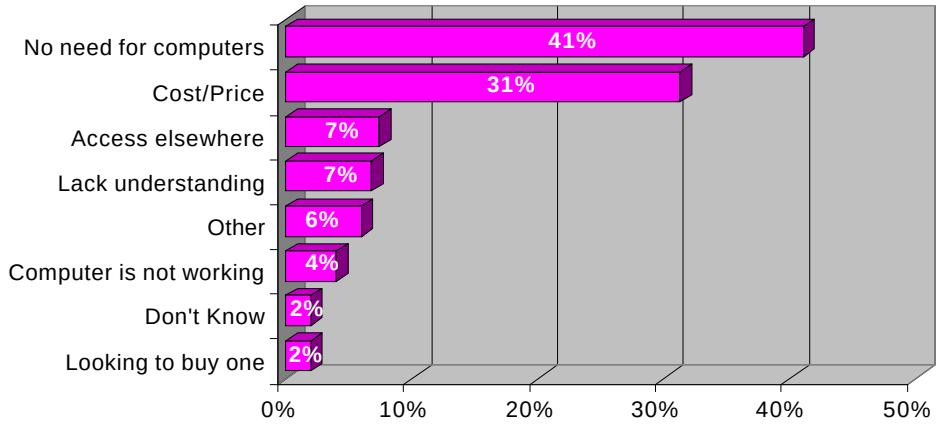
Computer Access

Q3 What is the reason you don't have a computer at home?

Several questions were developed to probe San Diego residents' computer access. The first of these questions was presented only to those who indicated they did not have access to a computer at home (responded 'no' to Question 2f). Question 3 asked these respondents to indicate the reason they didn't have access to a computer in their home. This question was presented as an open-ended question, which means that respondents were not constrained to a list of responses for their answer. Instead, the verbatim responses were recorded by the interviewer. At the end of the data collection, all verbatim responses were grouped into logical categories and programmed into the data set. The top eight responses and their corresponding percentages are presented below in the figure.

The most common response cited was that the individual felt they had no need for a computer (41%). Thirty-one percent indicated that the cost of a new computer was the major factor. Seven percent indicated they had access to a computer elsewhere and another seven percent said they lacked the essential knowledge to operate a computer.

Figure 5. Reason for Not Having a Computer



The table on the next page looks at the responses of 'no need', 'cost', and 'lack understanding' according to the respondents' age. Those over the age of 60 were considerably more likely to mention a lack of need or knowledge as the major reason for not having a computer in the home.

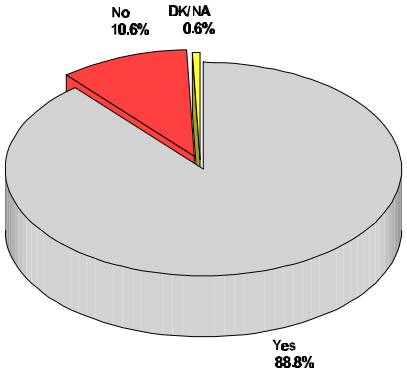
Table 14. Reason for Not Having a Computer by Age

	Overall	Age				
		18 to 25	26 to 39	40 to 49	50 to 59	60 +
No need	41%	33%	21%	46%	45%	64%
Cost	31%	40%	46%	29%	35%	10%
Lack understanding	7%	2%	8%	-	6%	11%

Q4. Is your computer connected to the Internet?

Those respondents who indicated that they had access to a computer in their home (responded 'yes' to Question 2f) were presented with Question 4, which asked if their home computer was connected to the Internet. The reader should keep in mind that this question asked *not* about personal Internet access or use, but rather about an Internet connection in the home. The figure below shows that 89 percent of the computers in the home were also connected to the Internet.

Figure 6. Home Internet Connection



The next table illustrates that a slightly higher percentage of residents in the Coastal and Northern regions reported a home computer-Internet connection than those in the Central and Southern regions.Table 16 provides the responses to the question according to the individual's education level. Individuals with a higher level of education were more likely to have their computer connected to the Internet than those with a lower education level.

Table 15. Home Internet Connection by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	1144	195	545	327	77
Yes	1016 88.8%	175 89.7%	503 92.1%	276 84.4%	63 82.3%
No	121 10.6%	20 10.3%	38 6.9%	49 15.1%	14 17.7%
DK/NA	7 0.6%	- -	5 0.9%	2 0.5%	- -

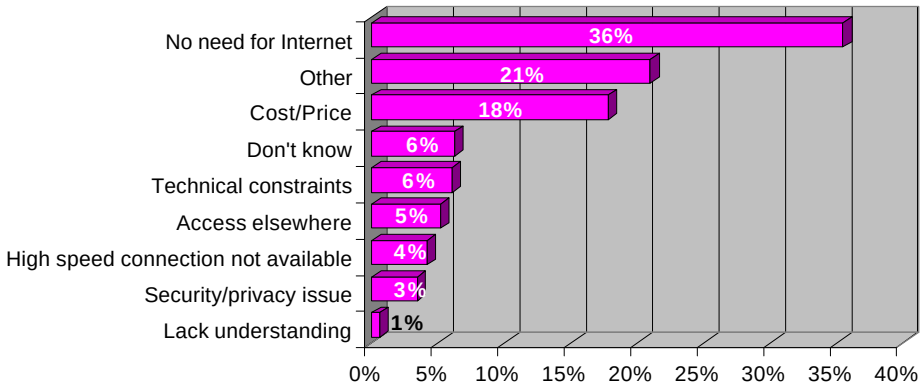
Table 16. Home Internet Connection by Education

	Overall	Education					
		Less than H.S.	H.S. Graduate	Trade School	Some College	College Graduate	Graduate Degree
Base	1144	43	184	23	343	342	195
Yes	1016 88.8%	33 77.0%	144 78.4%	21 91.6%	314 91.6%	314 91.8%	179 92.0%
No	121 10.6%	10 23.0%	37 20.1%	2 8.4%	29 8.4%	24 7.0%	16 8.0%
DK/NA	7 0.6%	- -	3 1.6%	- -	- -	4 1.1%	- -

Q5. What is the one reason your home computer is not connected to the Internet?

Individuals who indicated that their home computer was not connected to the Internet were asked to indicate the reason. This question was asked in an open-ended format and then later coded into logical categories. The categories and their respective percentages are presented on the next page. About one-third of the respondents (36%) indicated they had no need or desire to access the Internet. Several (18%) cited the cost of an Internet connection as the main reason. The 'Other' category is composed of miscellaneous responses that did not fit into one of the categories listed here and, individually, comprised less than one percent of the responses.

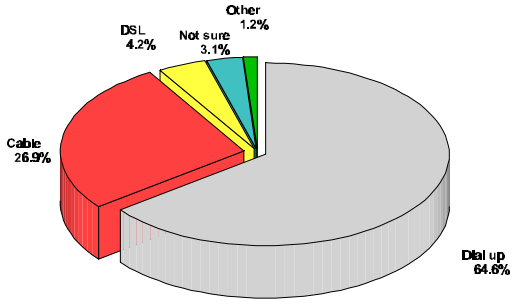
Figure 7. Reasons for No Internet Connection



Q6. How do you connect to the Internet from your home computer?

Respondents with a computer in their home that was connected to the Internet were presented with Question 6, which asked about their type of Internet connection. Sixty-five percent stated that they used a dial-up connection, and 27 percent said they used a cable modem.

Figure 8. Home Internet Connection Type



The following table provides the responses to this question with respect to the respondents' region. Individuals in the Coastal region were the most likely to have a cable modem connection and those in the Southern region were slightly more likely to indicate they had a DSL connection than individuals from the other regions.

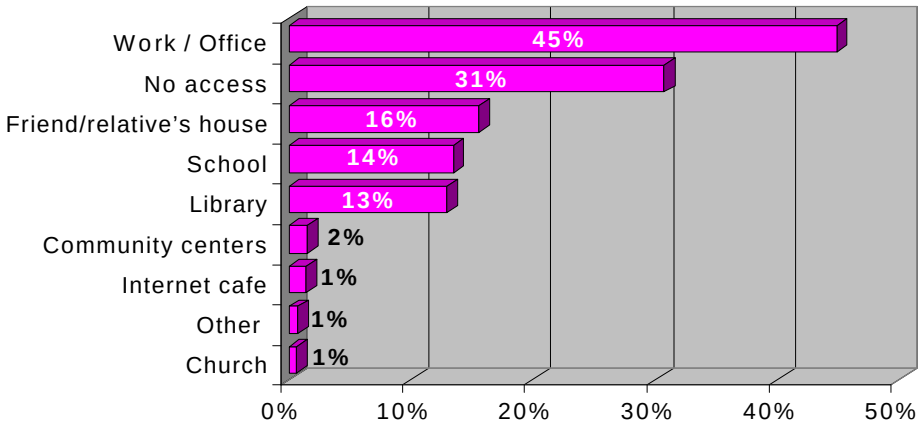
Table 17. Internet Connection Type by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	1016	175	503	276	63
Dial up	656 64.6%	107 61.3%	335 66.7%	175 63.6%	38 60.6%
Cable	273 26.9%	55 31.4%	132 26.3%	74 27.0%	12 19.2%
DSL	43 4.2%	9 5.0%	19 3.7%	9 3.3%	6 9.5%
ISDN	6 0.6%	0 0.2%	4 0.7%	1 0.5%	1 1.8%
T-1	2 0.2%	1 0.5%	1 0.2%	- -	- -
Other	4 0.4%	1 0.5%	3 0.6%	- -	- -
Not sure	30 3.0%	2 1.2%	8 1.6%	15 5.4%	5 7.6%
Refused	2 0.2%	- -	- -	1 0.2%	1 1.4%

Q7. Do you have access to computers at locations outside of your home?

Question 7 asked all respondents if they had access to computers at locations outside their home. Up to three responses were recorded from each respondent. The figure below shows that many individuals have access to a computer at their work or office (45%). Approximately one-third (31%) stated that they had no computer access outside their home.

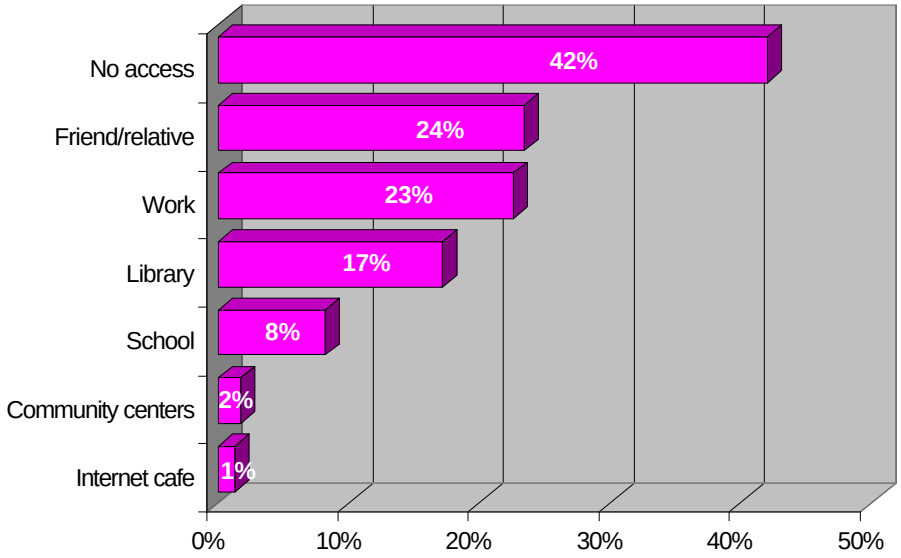
Figure 9. Access to Computer Outside of Home



42 percent of the residents without access to a computer at home said they did not have access at any other location. For those without access to a computer at home, friends/rela-

tives (24%), work (23%), libraries (17%), and schools (8%) provide this access. Figure 10 shows how indviduals without home computers are obtaining access.

Figure 10. Computer Access by Those Without Home Computers



The tables below identify individuals who reported having no access to a computer at home *nor* outside the home with respect to their region, age, education, ethnicity, and interview language. Individuals who were *least likely* to have access to a computer were those in the Central region, those over the age of 60, individuals with less than a high school degree, Latinos, and particularly those who completed the interview in Spanish.

Table 18. Individual's Computer Access by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	1599	258	680	541	120
Have access	1409 88.1%	235 90.9%	635 93.4%	438 80.9%	101 84.5%
No access	190 11.9%	23 9.1%	45 6.6%	103 19.1%	18 15.5%

Table 19. Individual's Computer Access by Age

	Overall	Age				
		18 to 25	26 to 39	40 to 49	50 to 59	60 +
Base	1599	281	525	321	194	257
Have access	1409 88.1%	266 94.6%	465 88.6%	303 94.5%	170 87.7%	186 72.5%
No access	190 11.9%	15 5.4%	60 11.4%	18 5.5%	24 12.3%	71 27.5%

Table 20. Individual's Computer Access by Education

	Overall	Education					
		Less than H.S.	H.S. Graduate	Trade School	Some College	College Graduate	Graduate Degree
Base	1599	123	336	37	452	404	223
Have access	1409 88.1%	65 52.8%	273 81.3%	34 93.3%	418 92.5%	387 95.7%	216 96.8%
No access	190 11.9%	58 47.2%	63 18.7%	2 6.7%	34 7.5%	17 4.3%	7 3.2%

Table 21. Individual's Computer Access by Ethnicity and Interview Language

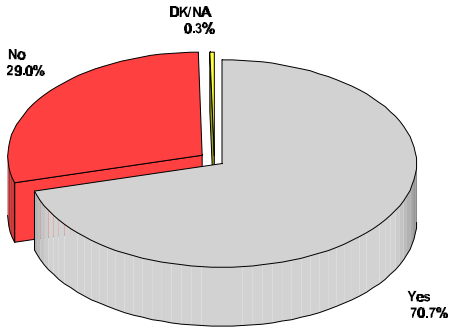
	Overall	Ethnicity				Interview Language	
		African-Am.	Asian-Am. / Other	Caucasian	Latino(a)	English	Spanish
Base	1599	138	211	809	374	1508	91
Have access	1409 88.1%	128 92.3%	185 87.9%	743 91.9%	297 79.3%	1348 89.4%	60 65.7%
No access	190 11.9%	11 7.7%	25 12.1%	66 8.1%	78 20.7%	159 10.6%	31 34.3%

Access and Use of the Internet

Q9. Do you currently use the Internet?

A series of questions was designed to profile residents' access and use of the Internet. The first of these questions asked respondents if they currently used the Internet. The figure below illustrates that 71 percent of San Diego residents sampled indicated that they currently used the Internet.

Figure 11. Internet Use



The following four tables present the responses to this question by several demographic variables. Current Internet access was highest among those in the Coastal and Northern regions, men, those with a household income of over $60,000, caucasians, those who completed the interview in English, and those under the age of 50.

Table 22. Internet Use by Region and Gender

	Overall	Region				Gender	
		Coastal	Northern	Central	Southern	Male	Female
Base	1605	259	682	542	122	793	812
Yes	1135 70.7%	199 76.8%	526 77.2%	335 61.9%	74 60.4%	601 75.8%	533 65.7%
No	465 29.0%	59 22.9%	151 22.1%	207 38.1%	48 39.6%	189 23.9%	276 34.0%
DK/NA	5 0.3%	1 0.3%	4 0.7%	- -	- -	3 0.3%	3 0.3%

Table 23. Use of the Internet by Household Income

	Overall	Household Income					
		$20K or less	$20K to $40K	$40K to $60K	$60K to $80K	$80K to $120K	$120K +
Base	1605	170	345	246	146	146	75
Yes	1135 70.7%	86 50.7%	236 68.2%	194 78.8%	125 85.3%	125 85.6%	65 87.3%
No	465 29.0%	84 49.3%	109 31.5%	50 20.5%	21 14.7%	21 14.4%	10 12.7%
DK/NA	5 0.3%	- -	1 0.2%	2 0.8%	- -	- -	- -

Table 24. Use of the Internet by Ethnicity and Interview Language

	Overall	Ethnicity				Interview Language	
		African-Am.	Asian-Am. / Other	Caucasian	Latino(a)	English	Spanish
Base	1605	138	211	812	377	1513	92
Yes	1135 70.7%	96 69.7%	150 71.5%	627 77.2%	218 57.9%	1088 71.9%	46 50.4%
No	465 29.0%	42 30.3%	60 28.5%	183 22.6%	157 41.6%	419 27.7%	46 49.6%
DK/NA	5 0.3%	- -	- -	2 0.2%	2 0.5%	5 0.3%	- -

Table 25. Use of the Internet by Age

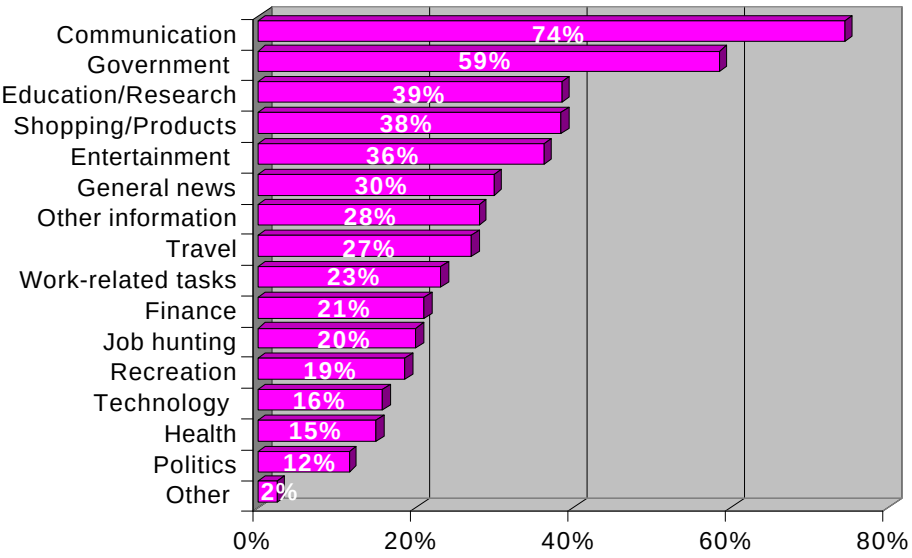
	Overall	Age				
		18 to 25	26 to 39	40 to 49	50 to 59	60 +
Base	1605	282	527	321	194	259
Yes	1135 70.7%	227 80.6%	409 77.6%	263 81.8%	129 66.6%	98 37.8%
No	465 29.0%	55 19.4%	117 22.2%	58 18.2%	62 32.0%	161 62.2%
DK/NA	5 0.3%	- -	1 0.2%	- -	3 1.4%	- -

Q10. What have you used the Internet for in the past year?

Question 10 was presented to those who indicated that they currently accessed the Internet. Specifically it asked them to indicate what they used the Internet for in the past year. The question was presented in an open-ended format and up to three responses were recorded from each individual. As a result, the percentages presented in the figure on the next page represent the percentage of respondents who mentioned that particular item as one of their answers (and thus, add to more than 100).

Approximately three-fourths of the respondents (74%) mentioned 'communication', such as email and chatting, as a task they performed on the Internet. Information searches related to 'government' were the next most popular activity (59%). Academic and education-related research (39%), shopping (38%), and entertainment, such as music, videos, and games (36%) were the next most frequently cited activities.

Figure 12. Use of the Internet

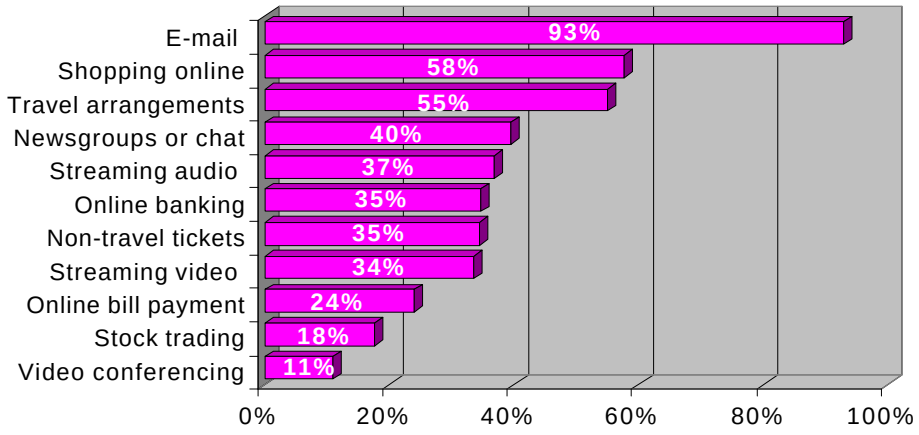


Q11. As I read each of the following Internet technologies or services, please tell me if you have used them in the past year.

Question 11 presented Internet users with a series of Internet technologies and services and asked them to indicate whether or not they had used them in the past year. The order of the items was randomized between individuals. Figure 13 below presents the percentage of individuals who indicated they had utilized the particular technology or service.

Nearly all individuals with Internet access indicated they had used email (93%). Fifty-eight percent said they had shopped or made a purchase online, and 55 percent said they had made travel arrangements or bought travel tickets online.

Figure 13. Use of Internet Technologies



The following two tables present the responses to Question 11 by region and household income. The numbers represent the percentage of individuals who indicated they used a particular technology or service in the past year. Individuals in the Coastal and Northern regions were more likely to have used nearly all of the technologies and services tested than those in the Central and Southern regions. 'Newsgroups or chat groups' and 'online bill payment' had a more balanced distribution of usage across the regions. With respect to household income, substantial differences in usage existed. A much larger percentage of those in the upper income levels reported utilizing the technologies and services than those at lower income levels. 'Newsgroups or chat groups', 'online bill payment', and 'streaming audio' the most consistent items across the income levels.

Table 26. Use of Internet Technologies by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Q11a Email	93%	94%	97%	89%	86%
Q11f Shopping or online purchases	58%	64%	65%	47%	45%
Q11g Travel reservations or tickets	55%	62%	60%	46%	42%
Q11b Newsgroups or chat groups	40%	38%	38%	43%	45%
Q11c Streaming audio	37%	42%	38%	36%	30%
Q11i Online banking	35%	37%	37%	31%	31%
Q11h Non-travel related reservations or tickets	35%	34%	37%	30%	35%
Q11d Streaming video	34%	35%	37%	30%	28%
Q11j Online bill payment	24%	22%	25%	25%	19%
Q11k Stock trading	18%	23%	21%	13%	8%
Q11e Video conferencing	11%	14%	12%	8%	10%

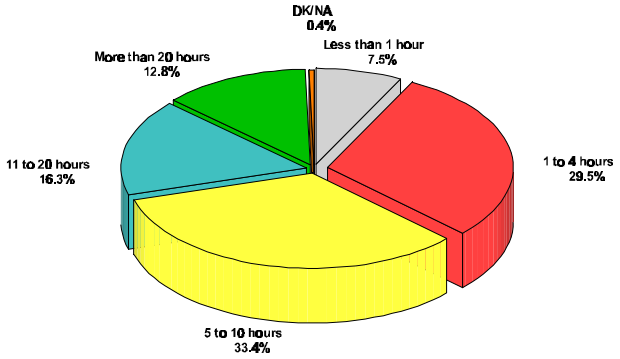
Table 27. Use of Internet Technologies by Household Income

	Overall	Household Income					
		$20K or less	$20K to $40K	$40K to $60K	$60K to $80K	$80K to $120K	$120K +
Q11a Email	93%	91%	93%	91%	97%	99%	98%
Q11f Shopping or online purchases	58%	48%	49%	62%	73%	78%	82%
Q11g Travel reservations or tickets	55%	36%	49%	58%	70%	72%	79%
Q11b Newsgroups or chat groups	40%	39%	36%	37%	47%	44%	34%
Q11c Streaming audio	37%	35%	35%	39%	37%	43%	40%
Q11i Online banking	35%	31%	33%	36%	38%	44%	43%
Q11h Non-travel related reservations or tickets	35%	22%	27%	38%	49%	42%	44%
Q11d Streaming video	34%	32%	30%	35%	34%	40%	45%
Q11j Online bill payment	24%	24%	24%	22%	24%	31%	33%
Q11k Stock trading	18%	9%	11%	15%	19%	30%	44%
Q11e Video conferencing	11%	3%	8%	8%	14%	17%	24%

Q12. On average, how many hours per week do you actively use the Internet?

To further investigate Internet usage among residents, Question 12 asked respondents to report the number of hours that they actively used the Internet per week. The following figure illustrates that the majority of respondents (63%) said they actively used the Internet between one and ten hours per week.

Figure 14. Average Internet Hours per Week



The table below looks at the average hours spent per week on the Internet with respect to the number of years the individual had used the Internet (see Question 13 below). The findings indicate that, generally, the average number of hours one actively accesses the Internet increases with the number of years of Internet experience the individual has.

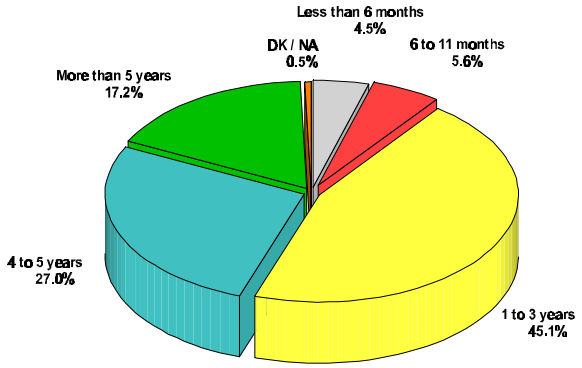
Table 28. Average Internet Hours per Week by Years of Internet Experience

	Overall	Years of Internet Experience			
		Less than 1	1 to 3	4 to 5	6 +
Base	1135	78	498	301	192
Less than 1 hour	85 7.5%	21 27.5%	33 6.6%	13 4.3%	11 5.5%
1 to 4 hours	335 29.5%	29 37.5%	166 33.4%	77 25.7%	28 14.5%
5 to 10 hours	379 33.4%	18 22.9%	196 39.3%	105 34.7%	48 24.8%
11 to 20 hours	185 16.3%	6 8.3%	68 13.7%	70 23.3%	34 17.5%
More than 20 hours	145 12.8%	3 3.9%	34 6.9%	33 10.9%	72 37.7%
DK/NA	5 0.4%	- -	1 0.2%	3 1.1%	- -

Q13. How long have you been using the Internet?

Question 13 asked Internet users to indicate how long they had been using the Internet. The figure below indicates that nearly all respondents had at least one year of Internet experience (89%), with a large percentage indicating between one and three years experience (45%). Eleven percent had less than one year of experience using the Internet.

Figure 15. Years of Internet Experience



The following two tables look at years of Internet experience by the respondents' region, years of residence, and education. Overall, those in the Coastal and Northern regions tended to have greater experience than those in the Central and Southern regions. Looking at years of residence, newcomers to San Diego tended to have more Internet experience than those who had resided in the City for several years. Education did not appear to be a clear predictor of Internet experience, although those who were a college graduate and those with a graduate degree tended to have the most experience.

Table 29. Years of Internet Experience by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	1135	199	526	335	74
Less than 6 months	51 4.5%	8 4.2%	19 3.5%	18 5.3%	6 7.6%
6 to 11 months	64 5.6%	4 2.2%	25 4.8%	28 8.3%	6 8.5%
1 to 3 years	512 45.1%	94 47.1%	213 40.5%	170 50.7%	35 47.9%
4 to 5 years	307 27.0%	56 28.3%	162 30.8%	71 21.2%	17 23.3%
More than 5 years	195 17.2%	36 18.1%	103 19.6%	46 13.8%	9 12.7%
DK / NA	6 0.5%	0 0.1%	3 0.6%	2 0.7%	- -

Table 30. Years of Internet Experience by Years of Residence

	Overall	Years of Residence					
		Less than 1	1 to 2	3 to 5	6 to 10	11 to 15	16 +
Base	1135	65	90	139	151	143	540
Less than 6 months	51 4.5%	5 7.0%	5 5.2%	7 5.2%	5 3.5%	4 2.7%	25 4.6%
6 to 11 months	64 5.6%	2 2.5%	3 3.4%	5 3.6%	15 10.3%	5 3.5%	34 6.3%
1 to 3 years	512 45.1%	23 35.3%	32 35.0%	58 41.8%	77 50.7%	58 40.5%	261 48.3%
4 to 5 years	307 27.0%	18 27.2%	31 33.9%	45 32.5%	29 19.5%	50 35.0%	133 24.6%
More than 5 years	195 17.2%	17 26.4%	20 22.5%	24 16.9%	24 16.0%	26 18.4%	82 15.3%
DK / NA	6 0.5%	1 1.6%	- -	- -	- -	- -	5 0.9%

Table 31. Years of Internet Experience by Education

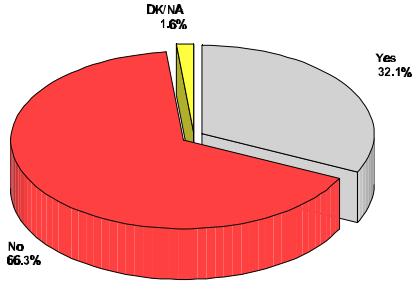
	Overall	Education					
		Less than H.S.	H.S. Graduate	Trade School	Some College	College Graduate	Graduate Degree
Base	1135	34	188	25	359	331	189
Less than 6 months	51 4.5%	1 2.7%	15 8.1%	3 11.0%	20 5.6%	8 2.3%	4 2.1%
6 to 11 months	64 5.6%	4 12.3%	12 6.6%	5 21.5%	22 6.3%	16 4.7%	4 2.0%
1 to 3 years	512 45.1%	19 54.9%	102 54.5%	9 36.1%	170 47.5%	143 43.3%	63 33.3%
4 to 5 years	307 27.0%	5 14.5%	42 22.2%	6 25.6%	94 26.1%	96 28.8%	63 33.6%
More than 5 years	195 17.2%	5 15.6%	16 8.5%	1 5.8%	52 14.6%	66 20.1%	51 27.3%
DK / NA	6 0.5%	- -	- -	- -	- -	3 0.8%	3 1.8%

Access and Use of City's Website

Q14. Have you visited the City of San Diego's website in the past 12 months?

The next three questions of the survey asked residents with Internet access about their experiences with the City of San Diego's website. The first of these questions asked if the individual had visited the City's website in the last 12 months. The overall responses to this question are presented below. Thirty-two percent of respondents with Internet access indicated that they had visited the City's website in the last 12 months and two-thirds (66%) had not.

Figure 16. Visited the City of San Diego's Website in Last 12 Months



The tables below look at the responses to Question 14 by a variety of demographic variables. The subgroups that were most likely to have visited the City's website in the last 12 months were Latinos, and especially those who elected to take the interview in Spanish, those in the Coastal and Northern regions, individuals with higher household incomes, residents of less than three years, and those who were employed or a homemaker. Those who owned their home and those who rented their home reported similar responses to the question.

Table 32. Visited City's Website by Ethnicity and Interview Language

	Overall	Ethnicity				Interview Language	
		African-Am.	Asian-Am. / Other	Caucasian	Latino(a)	English	Spanish
Base	1135	96	150	627	218	1088	46
Yes	364 32.1%	31 32.1%	47 31.5%	193 30.9%	82 37.7%	328 30.1%	36 77.6%
No	753 66.4%	65 67.9%	98 65.4%	424 67.7%	134 61.3%	743 68.3%	10 22.4%
DK/NA	18 1.5%	- -	5 3.1%	9 1.5%	2 1.1%	18 1.6%	- -

Table 33. Visited City's Website by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	1135	199	526	335	74
Yes	364 32.1%	69 34.5%	183 34.7%	93 27.8%	19 26.0%
No	753 66.4%	127 64.1%	334 63.5%	237 70.8%	54 73.1%
DK/NA	18 1.5%	3 1.3%	9 1.8%	5 1.4%	1 0.9%

Table 34. Visited City's Website by Household Income

	Overall	Household Income					
		$20K or less	$20K to $40K	$40K to $60K	$60K to $80K	$80K to $120K	$120K +
Base	1135	86	236	194	125	125	65
Yes	364 32.1%	21 24.4%	78 33.2%	66 34.2%	42 33.5%	53 42.2%	28 42.2%
No	753 66.4%	65 75.6%	154 65.2%	123 63.6%	81 64.9%	70 56.2%	35 54.1%
DK/NA	18 1.5%	- -	4 1.6%	4 2.1%	2 1.6%	2 1.6%	2 3.7%

Table 35. Visited City's Website by Years of Residence

	Overall	Years of Residence					
		Less than 1	1 to 2	3 to 5	6 to 10	11 to 15	16 +
Base	1135	65	90	139	151	143	540
Yes	364 32.1%	30 46.8%	38 42.4%	46 32.8%	46 30.7%	47 32.8%	155 28.7%
No	753 66.4%	34 52.8%	50 55.5%	90 64.8%	102 67.6%	94 65.9%	377 69.9%
DK/NA	18 1.5%	0 0.4%	2 2.1%	3 2.4%	2 1.6%	2 1.3%	8 1.4%

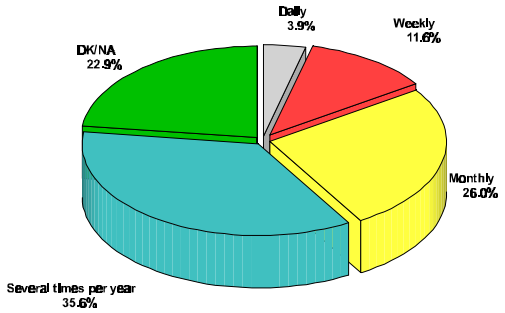
Table 36. Visited City's Website by Employment Status and Home Ownership

	Overall	Employment Status					Home Ownership	
		Employed	Student	Home - maker	Retired	Un - employed	Rent	Own
Base	1135	839	116	53	86	33	561	542
Yes	364 32.1%	293 34.9%	20 17.7%	17 32.8%	23 27.1%	9 26.7%	170 30.3%	187 34.6%
No	753 66.4%	534 63.6%	92 79.8%	36 67.2%	61 70.5%	24 73.3%	380 67.8%	347 64.2%
DK/NA	18 1.5%	13 1.5%	3 2.5%	- -	2 2.3%	- -	11 1.9%	7 1.3%

Q15. How frequently do you access the City's website? Would you say you access it daily, weekly, monthly or several times per year?

Respondents who said they had visited the City's website were asked to indicate the frequency of their access. Respondents were asked to indicate whether they accessed the website 'daily', 'weekly', 'monthly', or 'several times per year'. The figure below provides the overall results of this question. A combined 62 percent indicated they accessed the City's website either monthly (26%) or several times per year (36%). Sixteen percent said they accessed it either daily (4%) or weekly (12%).

Figure 17. Frequency of Use of City's Website

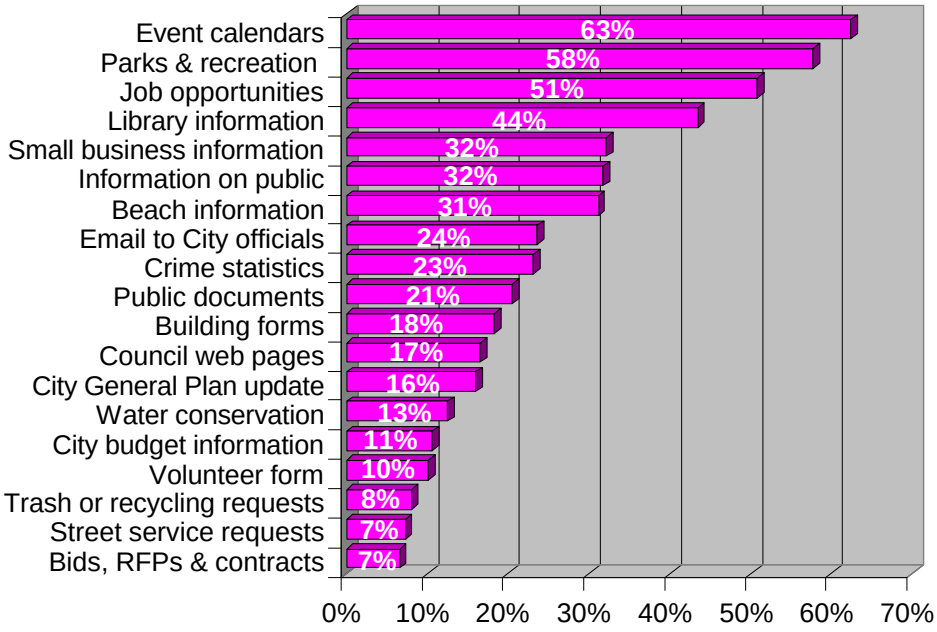


Q16. As I read each of the following information items and services, please tell me if you have accessed them on the City's website.

Question 16 presented respondents who indicated they had accessed the City's website with a a series of 19 different website items and services and asked them to indicate whether or not they had ever accessed each of them. The order of the items was randomized between individuals. The figure on the next page presents the percentage of individuals who indicated they had accessed the item or service.

Sixty-three percent of those who had visited the City's website in the last year indicated they had accessed information concerning 'event calendars'. Fifty-eight percent said they had accessed information on 'parks and recreation centers', and 51 percent had accessed information regarding 'job opportunities' on the website. Accessing library information was also a popular activity (44%).

Figure 18. Access to Items and Services on City's Website



The next three tables look at access to the most frequently accessed website items (from Figure 18) with respect to the respondents' region, ethnicity, interview language, and age. Although residents in the Central and Southern regions were typically less likely to visit the City's website, the range of activities they perform while on the site seems to be somewhat broader than those from the Coastal and Northern regions. Latinos also tended to report greater access to the various items and services. Because of the small number of individuals who took the interview in Spanish *and* had visited the website (n = 36), GRA recommends caution when generalizing the findings of this analysis to the Spanish-speaking population. As one would expect, age differences existed across many of the website items and services tested. Although, because the number of individuals over the age of 60 who had visited the City's website was quite low (n = 23), GRA recommends caution when examining this particular subgroup.

Table 37. Access to Items and Services on City's Website (Top Tier) by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Q16e Event calendars	63%	53%	65%	67%	58%
Q16c Parks and recreation centers	58%	53%	61%	57%	57%
Q16b Job opportunities	51%	48%	43%	68%	54%
Q16a Library information and services	44%	45%	43%	44%	53%
Q16i Information on public projects	32%	42%	28%	34%	28%
Q16o Small business information	32%	22%	30%	44%	37%
Q16d Beach information	31%	28%	33%	31%	32%
Q16l Email to City officials	24%	29%	21%	26%	17%
Q16h Crime statistics	23%	19%	24%	25%	25%

Table 38. Access to Items and Services on City's Website (Top Tier) by Ethnicity and Interview Language

	Overall	Ethnicity				Interview Language	
		African-Am.	Asian-Am. / Other	Caucasian	Latino(a)	English	Spanish
Q16e Event calendars	63%	56%	65%	54%	84%	59%	100%
Q16c Parks and recreation centers	58%	47%	62%	54%	72%	54%	95%
Q16b Job opportunities	51%	44%	54%	37%	84%	46%	98%
Q16a Library information and services	44%	53%	45%	38%	56%	42%	60%
Q16i Information on public projects	32%	26%	18%	28%	54%	25%	93%
Q16o Small business information	32%	27%	44%	26%	38%	31%	44%
Q16d Beach information	31%	15%	28%	34%	33%	30%	44%
Q16l Email to City officials	24%	24%	21%	21%	31%	22%	44%
Q16h Crime statistics	23%	25%	21%	22%	28%	25%	12%

Table 39. Access to Items and Services on City's Website (Top Tier) by Age

	Overall	Age				
		18 to 25	26 to 39	40 to 49	50 to 59	60 +
Q16e Event calendars	63%	60%	66%	66%	64%	34%
Q16c Parks and recreation centers	58%	56%	62%	61%	60%	20%
Q16b Job opportunities	51%	73%	54%	51%	41%	8%
Q16a Library information and services	44%	45%	42%	43%	46%	49%
Q16i Information on public projects	32%	16%	31%	36%	47%	28%
Q16o Small business information	32%	32%	31%	32%	37%	32%
Q16d Beach information	31%	41%	29%	31%	37%	11%
Q16l Email to City officials	24%	20%	16%	30%	38%	28%
Q16h Crime statistics	23%	24%	22%	24%	26%	20%

Proposed Online Services

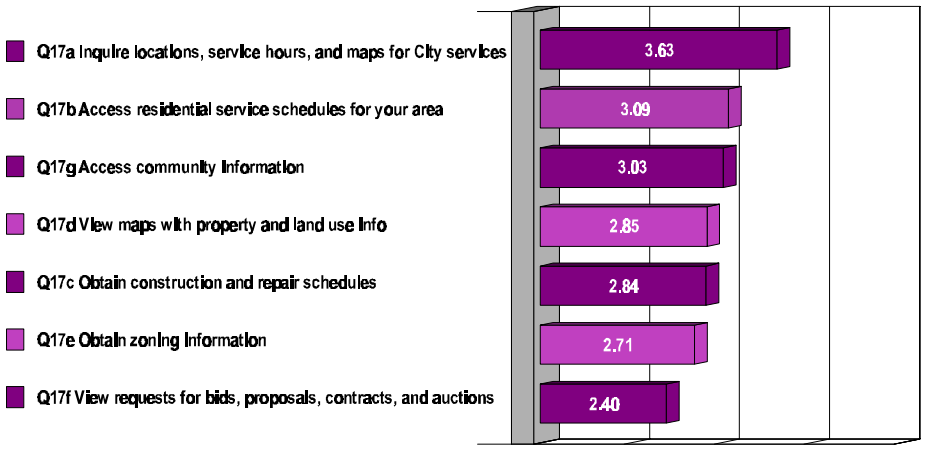
Q17. Please rate each item using a 1 to 5 scale, where 1 means 'not at all useful' and 5 means 'very useful'. The first list of items is about general City information.

The next series of questions was designed to evaluate residents' perceived usefulness of a wide variety of proposed online services. For the convenience of the respondent, the items were divided into four general categories and presented as separate sets of proposed services. As each item was read, the respondent was asked to use a scale of 1 to 5 to identify how useful they felt the item would be, where a 1 represented 'not at all useful' and a 5 represented 'very useful'. This series of questions not only provides insight into residents' overall interest in each of the individual proposed services, but it also provides a relative ranking of usefulness among the various services. The order of the items within the four sets was randomized between individuals.

For the analyses of these questions, responses were coded using the scale of +1 to +5 and averaged to form an overall score. The aggregate responses to each item are presented in the form of a mean, which is simply a summary statistic obtained by taking the overall average of the responses from the entire sample. The figure below presents these means organized from the highest to lowest to provide the City of San Diego with a general prioritization of the various services.

The first series of questions focused on proposed online services related to general City information. Figure 19 illustrates that the services residents, overall, rated as the most useful were 'Locations, service hours, and maps for City facilities such as parks, libraries, and police stations' (3.63), 'Residential service schedules for your area such as trash pickup, street sweeping, and water meter reading' (3.09), and 'Community information such as nonprofit and community organization activities (3.03).

Figure 19. Usefulness of General City Information Online



The following three tables utilize the same method of analysis as discussed on the previous page, although the values in each cell represent the average response within that subgroup. The first table investigates the average level of 'usefulness' assigned to the various services according to whether or not the individual had visited the City's website, whether or not they had Internet access, a computer at home, or any access to a computer either at home or elsewhere. As one can see, those who had visited the City's website in the last 12 months had a tendency to rate all proposed services with a higher level of usefulness than those who did not. This trend continues for the other three groups identified in the table, whereby the more access the group had to the website (considering Internet access and computer access), the more useful they rated the various proposed services, overall.

In agreement with the finding that those in the Central and Southern regions seemed to participate in a broader range of activities while on the City's website (see Table 37, page 39) than those in the Coastal and Northern regions, Table 40 shows that these individuals often assigned a higher level of usefulness to many of the proposed services than their counterparts. Latinos, and especially those who took the interview in Spanish, rated all proposed services quite highly.

Table 40. General City Information Online by Visited City's Website, Internet Access, Computer at Home & Computer Access

	Overall	Visited City's Website		Internet Access		Computer at Home		Computer Access	
		Yes	No	Yes	No	Yes	No	Have access	No access
Base	2.94	3.24	2.96	3.06	2.63	3.02	2.70	2.98	2.58
Q17a Inquire locations, service hours, and maps for City services	3.63	3.99	3.70	3.80	3.18	3.74	3.35	3.69	3.14
Q17b Access residential service schedules for your area	3.09	3.37	3.08	3.18	2.87	3.19	2.82	3.13	2.80
Q17g Access community information	3.03	3.38	3.06	3.16	2.68	3.13	2.75	3.08	2.58
Q17d View maps with property and land use info	2.85	3.32	2.89	3.03	2.40	2.98	2.50	2.91	2.33
Q17c Obtain construction and repair schedules	2.84	2.99	2.89	2.92	2.62	2.87	2.74	2.87	2.58
Q17e Obtain zoning information	2.71	3.09	2.73	2.85	2.34	2.83	2.38	2.75	2.37
Q17f View requests for bids, proposals, contracts, and auctions	2.40	2.57	2.39	2.45	2.28	2.42	2.35	2.42	2.25

Table 41. General City Information Online by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	2.94	2.77	2.82	3.10	3.19
Q17a Inquire locations, service hours, and maps for City services	3.63	3.42	3.58	3.76	3.80
Q17b Access residential service schedules for your area	3.09	2.89	3.00	3.23	3.42
Q17g Access community information	3.03	2.77	2.98	3.18	3.15
Q17d View maps with property and land use info	2.85	2.80	2.77	2.89	3.20
Q17c Obtain construction and repair schedules	2.84	2.74	2.62	3.08	3.14
Q17e Obtain zoning information	2.71	2.52	2.59	2.91	2.85
Q17f View requests for bids, proposals, contracts, and auctions	2.40	2.24	2.23	2.63	2.74

Table 42. General City Information Online by Ethnicity and Interview Language

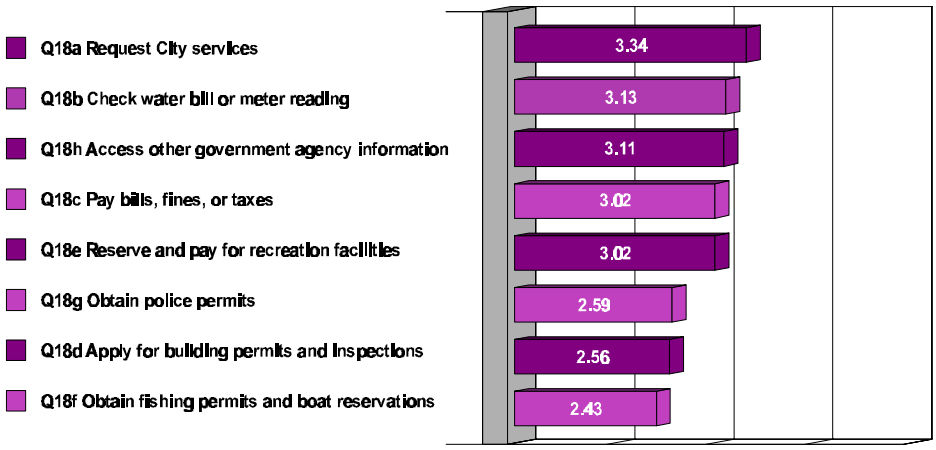
	Overall	Ethnicity				Interview Language	
		African-Am.	Asian-Am. / Other	Caucasian	Latino(a)	English	Spanish
Base	2.94	2.94	3.03	2.80	3.20	2.90	3.63
Q17a Inquire locations, service hours, and maps for City services	3.63	3.57	3.66	3.56	3.85	3.60	4.15
Q17b Access residential service schedules for your area	3.09	2.89	3.20	2.99	3.36	3.06	3.57
Q17g Access community information	3.03	3.19	3.20	2.90	3.20	3.00	3.58
Q17d View maps with property and land use info	2.85	2.69	3.04	2.70	3.14	2.80	3.78
Q17c Obtain construction and repair schedules	2.84	2.88	2.80	2.71	3.13	2.79	3.55
Q17e Obtain zoning information	2.71	2.88	2.75	2.53	2.97	2.65	3.70
Q17f View requests for bids, proposals, contracts, and auctions	2.40	2.47	2.54	2.19	2.75	2.36	3.18

Q18. Using the same 1 to 5 scale, please tell me how useful the following City services would be if placed online.

The next set of proposed services presented to the respondents was related to online access to City services. Again, as each item was read, the respondent was asked to use a scale of 1 to 5 to identify how useful the item would be, where a 1 represented 'not at all useful' and a 5 represented 'very useful'. In the same format as the analyses for Question 17, all responses were averaged to form a mean for each item. These means are presented in the figure below.

The proposed online City services that received the highest overall 'usefulness' ratings were 'Request City services such as streetlight repair, road sign repair, or missed trash pickup, and check the status of your request online' (3.34), 'Check your water bill or meter reading online' (3.13), and 'Convenient access to information and services provided by other government agencies, such as County and state governments' (3.11).

Figure 20. Usefulness of City Services Online



The following tables look more closely at the responses to Question 18 with respect to several variables. The first table investigates the average level of 'usefulness' assigned to the various services according to whether or not the individual had visited the City's website, whether or not they had Internet access, a computer at home, or any access to a computer either at home or elsewhere. Again we see that those who had visited the City's website in the last 12 months had a tendency to rate all proposed services with a higher level of usefulness than those who did not. The same relationship identified in Table 40 is observed with the other three groups identified in this table, in which the greater the amount of access the group had to the website (considering Internet access and computer access), the more useful they rated the various proposed online City services, overall.

Individuals in the Central and Southern regions, again, often assigned a higher level of usefulness to many of the proposed online City services than those in the Coastal and Northern regions. Latinos, and particularly those who completed the interview in Spanish, rated all proposed services quite highly.

Table 43. City Services Online by Visited City's Website, Internet Access, Computer at Home & Computer Access

	Overall	Visited City's Website		Internet Access		Computer at Home		Computer Access	
		Yes	No	Yes	No	Yes	No	Have access	No access
Base	2.90	3.22	2.90	3.01	2.63	2.98	2.68	2.93	2.60
Q18a Request City services	3.34	3.52	3.45	3.48	2.98	3.47	2.98	3.40	2.84
Q18b Check water bill or meter reading	3.13	3.54	3.18	3.31	2.69	3.25	2.80	3.19	2.68
Q18h Access other government agency information	3.11	3.52	3.06	3.22	2.83	3.19	2.88	3.15	2.68
Q18c Pay bills, fines, or taxes	3.02	3.43	3.08	3.20	2.58	3.13	2.72	3.07	2.59
Q18e Reserve and pay for recreation facilities	3.02	3.36	3.06	3.16	2.65	3.12	2.73	3.06	2.61
Q18g Obtain police permits	2.59	2.90	2.46	2.60	2.56	2.60	2.55	2.60	2.51
Q18d Apply for building permits and inspections	2.56	2.87	2.50	2.62	2.41	2.62	2.39	2.57	2.52
Q18f Obtain fishing permits and boat reservations	2.43	2.67	2.39	2.48	2.32	2.46	2.37	2.44	2.40

Table 44. City Services Online by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	2.90	2.73	2.85	3.01	3.07
Q18a Request City services	3.34	3.14	3.33	3.41	3.53
Q18b Check water bill or meter reading	3.13	2.89	3.10	3.25	3.35
Q18h Access other government agency information	3.11	2.85	3.09	3.23	3.25
Q18c Pay bills, fines, or taxes	3.02	2.91	2.95	3.14	3.11
Q18e Reserve and pay for recreation facilities	3.02	2.90	3.04	3.05	2.99
Q18g Obtain police permits	2.59	2.44	2.42	2.75	3.08
Q18d Apply for building permits and inspections	2.56	2.35	2.50	2.69	2.81
Q18f Obtain fishing permits and boat reservations	2.43	2.35	2.34	2.60	2.43

Table 45. City Services Online by Ethnicity and Interview Language

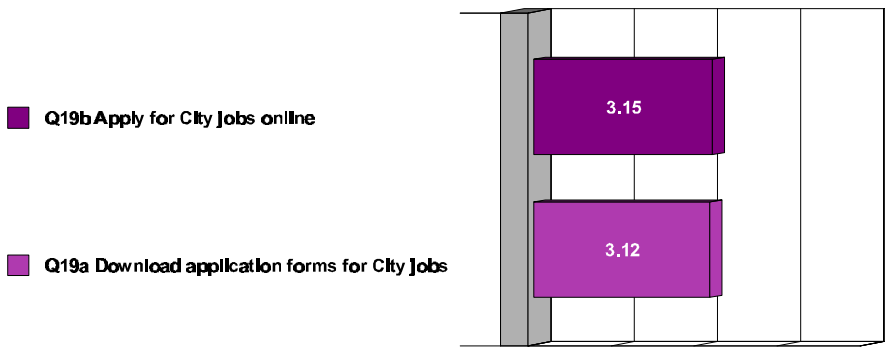
	Overall	Ethnicity				Interview Language	
		African-Am.	Asian-Am. / Other	Caucasian	Latino(a)	English	Spanish
Base	2.90	2.77	3.01	2.76	3.23	2.84	3.93
Q18a Request City services	3.34	3.06	3.52	3.29	3.52	3.31	3.82
Q18b Check water bill or meter reading	3.13	3.07	3.10	3.00	3.50	3.07	4.13
Q18h Access other government agency information	3.11	3.10	3.18	3.03	3.31	3.08	3.67
Q18c Pay bills, fines, or taxes	3.02	3.02	3.05	2.87	3.36	2.97	3.98
Q18e Reserve and pay for recreation facilities	3.02	2.79	3.05	2.95	3.27	2.97	4.01
Q18g Obtain police permits	2.59	2.65	2.72	2.31	3.14	2.50	4.07
Q18d Apply for building permits and inspections	2.56	2.40	2.77	2.32	3.05	2.48	3.92
Q18f Obtain fishing permits and boat reservations	2.43	2.10	2.69	2.30	2.71	2.36	3.84

Q19. Using the same 1 to 5 scale, please tell me how useful the following City employment services would be to you if placed online.

The next category of proposed online services presented to the respondents were related to City employment services. The same format applied to this question as the previous two, although there were only two proposed services tested. Respondents used a scale of 1 to 5 to rate the usefulness of the item where a 1 represented 'not at all useful' and a 5 represented 'very useful'. The aggregate scores are presented in the figure below.

Both proposed services received overall 'usefulness' ratings that were comparable to the top-ranked items from the previous questions, with 'Apply for City jobs online' receiving a mean score of 3.15 followed by 'Download application forms and detailed instruction sheets for City jobs online, with applications returned by mail' (3.12).

Figure 21. Usefulness of City Employment Services Online



Below, the tables illustrate the responses to Question 19 with respect to several variables. The first table investigates the average level of 'usefulness' assigned to the two proposed online employment services by employment status. Both services were rated with considerably high levels of 'usefulness' by students and those who indicated they were unemployed.

As one would expect, overall computer access continues to influence the respondents' perceived usefulness of the services, where the greater the amount of access the group had to the website, the more useful they rated the services, overall. Similarly, individuals in the Central and Southern regions reported higher average responses to the two proposed services than those in the Coastal and Northern regions.

Caucasians, overall, rated these two services lower than the each of the other ethnic groups, and Latinos rated them the highest. Once again, those who completed the interview in Spanish rated all proposed services with considerably high levels of usefulness.

Table 46. Employment Services Online by Employment Status

	Overall	Employment Status				
		Employed	Student	Home - maker	Retired	Un - employed
Base	3.14	3.27	3.63	2.99	1.98	3.74
Q19b Apply for City jobs online	3.15	3.29	3.56	3.00	2.01	3.80
Q19a Download application forms for City jobs	3.12	3.26	3.70	2.99	1.94	3.67

Table 47. Employment Services Online by Visited City's Website, Internet Access, Computer at Home & Computer Access

	Overall	Visited City's Website		Internet Access		Computer at Home		Computer Access	
		Yes	No	Yes	No	Yes	No	Have access	No access
Base	3.14	3.43	3.15	3.25	2.85	3.17	3.03	3.19	2.71
Q19b Apply for City jobs online	3.15	3.42	3.17	3.26	2.88	3.18	3.06	3.19	2.76
Q19a Download application forms for City jobs	3.12	3.45	3.13	3.24	2.83	3.17	3.01	3.18	2.66

Table 48. Employment Services Online by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	3.14	2.87	2.97	3.38	3.58
Q19b Apply for City jobs online	3.15	2.93	2.99	3.34	3.62
Q19a Download application forms for City jobs	3.12	2.81	2.95	3.41	3.54

Table 49. Employment Services Online by Ethnicity and Interview Language

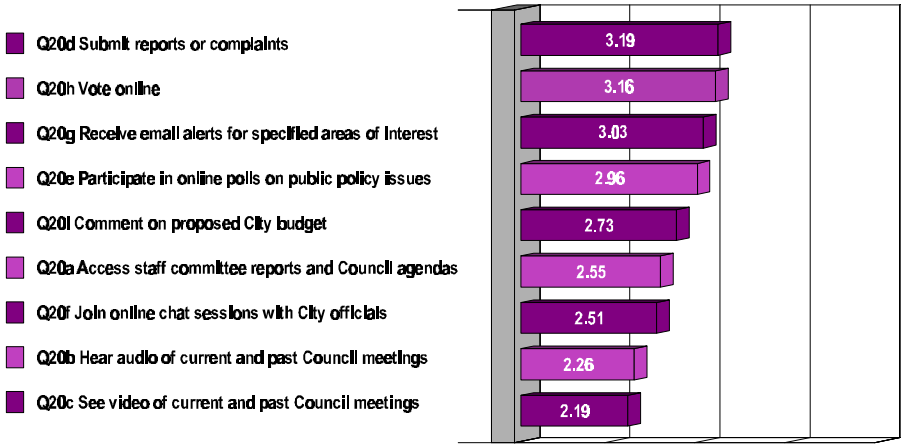
	Overall	Ethnicity				Interview Language	
		African-Am.	Asian-Am. / Other	Caucasian	Latino(a)	English	Spanish
Base	3.14	3.42	3.45	2.82	3.65	3.09	4.06
Q19b Apply for City jobs online	3.15	3.46	3.49	2.83	3.63	3.11	4.01
Q19a Download application forms for City jobs	3.12	3.39	3.42	2.80	3.66	3.08	4.10

Q20. Using the same 1 to 5 scale, please tell me how useful the following public participation services would be if placed online.

The final series of proposed online services presented to the respondents were related to public participation in City government. Respondents used a scale of 1 to 5 to identify how useful they felt the item would be (1 = 'not at all useful' and 5 = 'very useful'). The figure on the next page presents the mean of all responses for each proposed service.

The three public participation services that received the highest overall 'usefulness' ratings were 'Submit reports or complaints online, as well as check the status of the report or complaint' (3.19), 'Vote online' (3.16), and 'Receive email alerts when a specific subject you are interested in is discussed at a Council meeting' (3.03).

Figure 22. Usefulness of Public Participation Online



The tables below illustrate the responses to Question 20 stratified by a variety of variables. Table 50 investigates the average level of 'usefulness' assigned to the proposed public participation services by age. The public participation services tended to appeal more to younger individuals than older. 'Vote online' resonated particularly well with those under the age of 40, and even more so with those under the age of 26.

As was the case with the other three groups of proposed services tested, overall Internet and computer access was strongly related to the perceived usefulness of the services in which the greater the amount of access the group had to the website, the more useful they rated the services, overall. And again, individuals in the Central and Southern regions reported higher responses, on average, to the proposed services than those in the Coastal and Northern regions.

Latinos, and those who completed the interview in Spanish, continued to rate all proposed services with considerably high levels of usefulness with the exception of one item: 'Vote online'. Spanish speakers rated the usefulness of this service markedly lower than all other proposed services examined.

Table 50. Public Participation Online by Age

	Overall	Age				
		18 to 25	26 to 39	40 to 49	50 to 59	60 +
Base	2.73	2.84	2.89	2.85	2.64	2.14
Q20d Submit reports or complaints	3.19	3.24	3.44	3.38	3.10	2.35
Q20h Vote online	3.16	3.61	3.40	3.03	3.07	2.36
Q20g Receive email alerts for specified areas of interest	3.03	3.08	3.23	3.29	2.92	2.30
Q20e Participate in online polls on public policy issues	2.96	3.11	3.11	3.13	2.84	2.32
Q20i Comment on proposed City budget	2.73	2.76	2.87	2.90	2.65	2.16
Q20a Access staff committee reports and Council agendas	2.55	2.49	2.66	2.80	2.52	2.02
Q20f Join online chat sessions with City officials	2.51	2.72	2.69	2.52	2.39	1.91
Q20b Hear audio of current and past Council meetings	2.26	2.32	2.33	2.34	2.13	1.94
Q20c See video of current and past Council meetings	2.19	2.22	2.27	2.24	2.14	1.93

Table 51. Public Participation Online by Visited City's Website, Internet Access, Computer at Home & Computer Access

	Overall	Visited City's Website		Internet Access		Computer at Home		Computer Access	
		Yes	No	Yes	No	Yes	No	Have access	No access
Base	2.73	2.95	2.76	2.82	2.49	2.77	2.62	2.77	2.35
Q20d Submit reports or complaints	3.19	3.54	3.25	3.35	2.77	3.28	2.92	3.24	2.68
Q20h Vote online	3.16	3.34	3.30	3.33	2.73	3.22	2.99	3.24	2.54
Q20g Receive email alerts for specified areas of interest	3.03	3.47	3.06	3.20	2.60	3.12	2.79	3.11	2.43
Q20e Participate in online polls on public policy issues	2.96	3.26	3.01	3.10	2.59	3.04	2.74	3.02	2.46
Q20i Comment on proposed City budget	2.73	2.97	2.74	2.82	2.47	2.78	2.58	2.77	2.33
Q20a Access staff committee reports and Council agendas	2.55	2.74	2.57	2.63	2.33	2.60	2.41	2.58	2.24
Q20f Join online chat sessions with City officials	2.51	2.67	2.51	2.57	2.35	2.50	2.53	2.54	2.20
Q20b Hear audio of current and past Council meetings	2.26	2.34	2.21	2.26	2.27	2.23	2.34	2.27	2.10
Q20c See video of current and past Council meetings	2.19	2.20	2.16	2.17	2.26	2.16	2.29	2.20	2.14

Table 52. Public Participation Online by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	2.73	2.57	2.65	2.86	2.96
Q20d Submit reports or complaints	3.19	2.98	3.13	3.33	3.33
Q20h Vote online	3.16	3.01	3.19	3.16	3.28
Q20g Receive email alerts for specified areas of interest	3.03	2.86	2.98	3.15	3.21
Q20e Participate in online polls on public policy issues	2.96	2.77	2.95	3.01	3.14
Q20i Comment on proposed City budget	2.73	2.59	2.62	2.86	3.04
Q20a Access staff committee reports and Council agendas	2.55	2.39	2.47	2.70	2.67
Q20f Join online chat sessions with City officials	2.51	2.37	2.39	2.65	2.88
Q20b Hear audio of current and past Council meetings	2.26	2.08	2.08	2.50	2.56
Q20c See video of current and past Council meetings	2.19	2.11	2.04	2.36	2.51

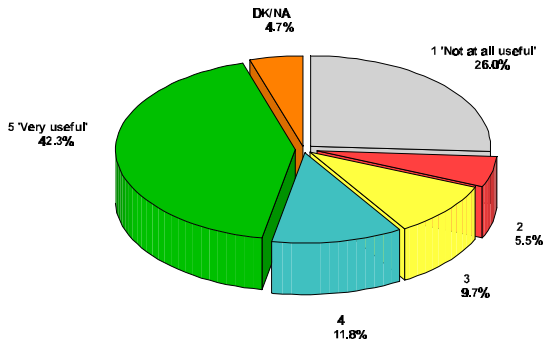
Table 53. Public Participation Online by Ethnicity and Interview Language

	Overall	Ethnicity				Interview Language	
		African-Am.	Asian-Am. / Other	Caucasian	Latino(a)	English	Spanish
Base	2.73	2.93	2.95	2.56	2.93	2.71	3.14
Q20d Submit reports or complaints	3.19	3.24	3.31	3.09	3.34	3.16	3.61
Q20h Vote online	3.16	3.33	3.29	3.14	3.15	3.20	2.57
Q20g Receive email alerts for specified areas of interest	3.03	3.31	3.22	2.87	3.23	3.01	3.51
Q20e Participate in online polls on public policy issues	2.96	3.01	3.36	2.79	3.13	2.94	3.18
Q20i Comment on proposed City budget	2.73	2.92	2.90	2.54	2.96	2.70	3.15
Q20a Access staff committee reports and Council agendas	2.55	2.69	2.82	2.37	2.74	2.52	3.00
Q20f Join online chat sessions with City officials	2.51	2.71	2.83	2.28	2.79	2.48	3.06
Q20b Hear audio of current and past Council meetings	2.26	2.64	2.40	2.00	2.59	2.20	3.15
Q20c See video of current and past Council meetings	2.19	2.50	2.41	1.96	2.44	2.14	3.04

Q21. Using the same 1 to 5 scale, how useful would it be to you to have a single number to call for all City information and services?

In Question 21, respondents were asked to use the same 1 to 5 scale to indicate how useful they felt it would be to have a single telephone number that would allow them to access all City information and services. The overall results are presented below in the form of a pie graph that displays the percentage of responses from 1 to 5. Forty-two percent said they felt it would be 'very useful' to have a single number to call for all City information and services. To reference the overall perceived usefulness of this item compared with the proposed online services in Questions 17 through 20, the same method of aggregation results in a mean score for these responses of 3.41.

Figure 23. Usefulness of a Single Phone Number for all City Services

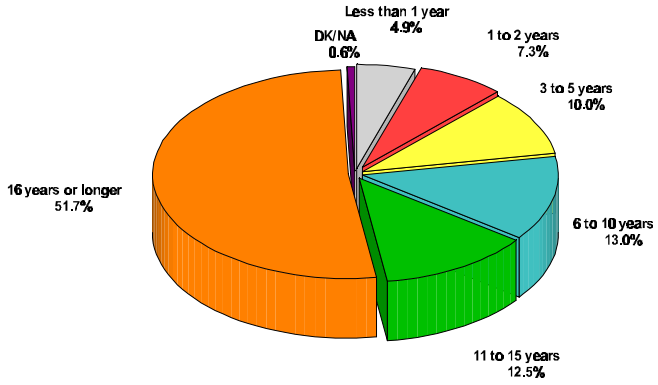


General Demographics

Figures 24 through 32 present a graphic representation of the demographic composition of the sample. Because of the methodology of this study, the sample is representative of the population of adult residents of the City of San Diego. Although the primary motivation for collecting the demographic information was to provide a better insight into how responses to the substantive questions of the survey vary across demographic characteristics, this information is also useful for better understanding the profile of the City's adult residents as a whole.

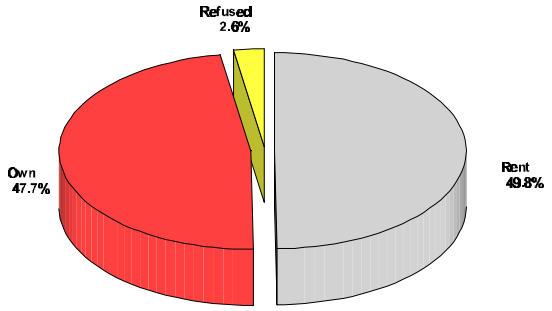
QA. How long have you lived in the City of San Diego?

Figure 24. Years of Residence



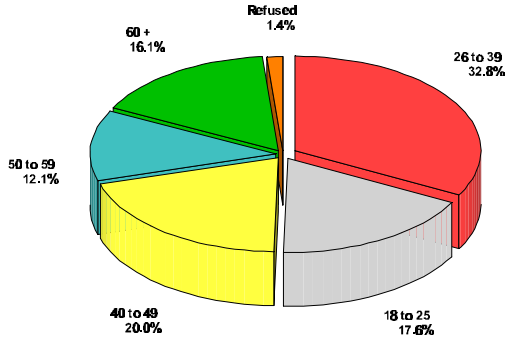
QB. Do you currently rent or own your home?

Figure 25. Homeowner Status



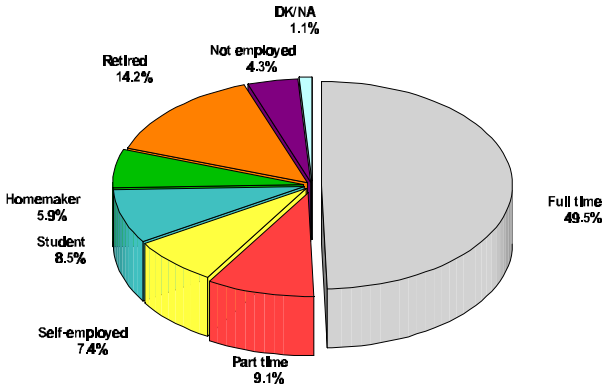
QC. Which of the following categories includes your age?

Figure 26. Age



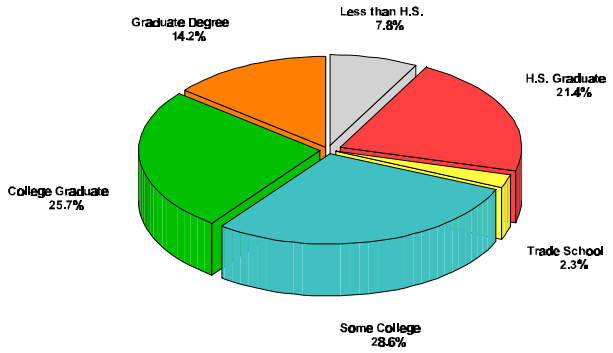
QD. Are you employed full time, employed part time, self-employed, a student, a homemaker, retired or are you not currently employed right now?

Figure 27. Employment Status



QE. What is the last grade or level you completed in school?

Figure 28. Education



QF. What ethnic group do you consider yourself a part of or feel closest to?

Figure 29. Ethnicity

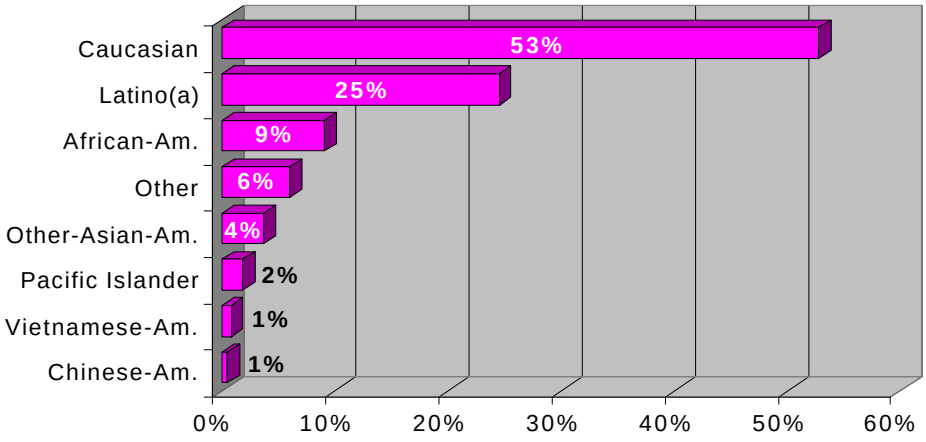
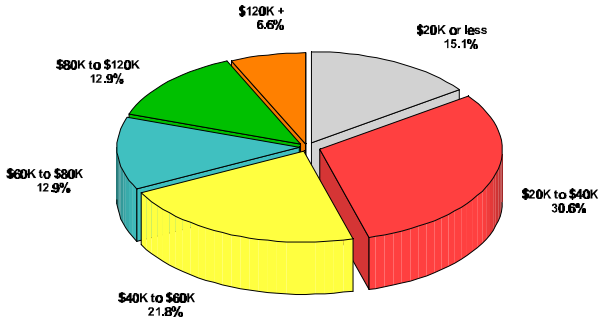


Table 54. Ethnicity by Region

	Overall	Region			
		Coastal	Northern	Central	Southern
Base	1538	251	649	517	121
African-Am.	138 9.0%	11 4.2%	24 3.8%	97 18.8%	6 5.3%
Asian-Am. / Other	211 13.7%	11 4.2%	105 16.2%	77 14.9%	18 15.0%
Caucasian	812 52.8%	193 76.9%	450 69.3%	148 28.7%	21 17.4%
Latino(a)	377 24.5%	37 14.7%	70 10.7%	195 37.7%	76 62.4%

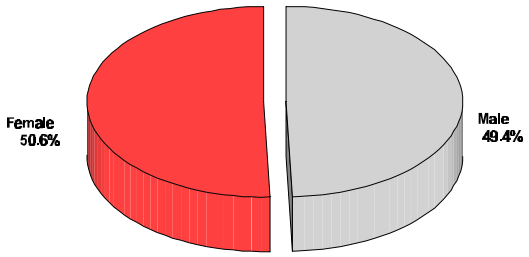
QG. For statistical purposes only, what was your total household income before taxes in 1999?

Figure 30. Household Income



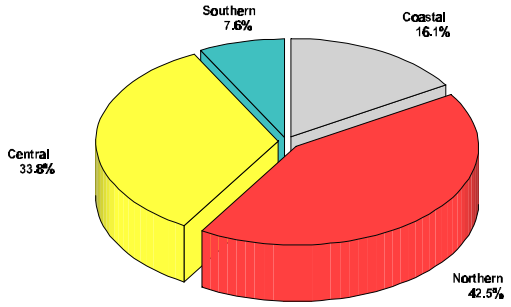
QH. Interviewers identified gender by the voice of the respondent.

Figure 31. Gender



Region was identified by the respondent's zip code (see Table 2 on page 8).

Figure 32. Region within City of San Diego



Appendix C. GLOSSARY OF IT TERMS

Architecture:

1. A framework and set of guidelines to build new systems. IT architecture is a series of principles, guidelines or rules used by an organization to direct the process of acquiring, building, modifying and interfacing IT resources throughout the organization. These resources can include equipment, software, communications, development methodologies, modeling tools and organizational structures.
2. In reference to computers, software or networks, architecture is the overall design of a computing system and the logical and physical interrelationships between its components. The architecture specifies the hardware, software, access methods and protocols used throughout the system.

Browser: A software program used to locate and display information on an intranet, extranet or the Internet. Browsers are most often used to access Web pages. Most browsers can display graphics, photographs and text; multimedia information such as sound and video may require additional software called "plug-ins."

Business Application: A specific use for the computer such as for accounts payable or payroll. The term is sometimes used in place of "application program," "software" or "program," which are used to process data for the user. Examples of programs and software include both prepackaged productivity software such as spreadsheets, word processors, or customized larger packages designed for multiple users (e.g., Lotus Notes, E-mail and general-ledger software).

Business Process Re-engineering (BPR): Fundamental analysis and radical redesign of business processes and management systems to achieve dramatic change or performance improvement. BPR uses objective, quantitative methods and tools to analyze, redesign and transform business processes, including their supporting organization structures, information systems, job responsibilities and performance standards.

Cellular Digital Packet Data (CDPD): This is cellular data transmitted over a cellular network. In early deployments, packet data moved at 19.2 Kbps over ever-changing unused intervals in the voice channels. Modern deployments use dedicated data channels. CDPD is an IP-based network with RC4 encryption that allows cellular networks to offer remote and mobile computing.

Client/server model: In most cases, the "client" is a desktop computing device or program "served" by another networked computing device. Computers are integrated over the network by an application, which provides a single system image. Multiple servers can serve a client.

COTS Software (Commercial Of-the-Shelf Software): Software developed by a commercial vendor to be sold as a product available on the general market.

Customer Relationship Management (CRM): An organization-wide business strategy designed to optimize profitability, revenue and customer satisfaction by implementing processes and technologies, and by fostering customer behaviors that support coordinated and more-effective customer interactions throughout all customer channels.

Data Center: The department in an organization that houses and maintains back-end information technology (IT) systems and data stores — its mainframes, servers, and databases. In the days of large, centralized IT operations, this department and all the systems resided in one physical place, hence the name data center. With today's more distributed computing methods, single data center sites are still common, but are becoming less so. The term continues to be used to refer to the department that has responsibility for these systems, no matter how dispersed they are.

Data Mart: A subset of data found in a data warehouse that is designed to support the unique business unit requirements of a specific decision support system.

Data Warehouse: A central computer repository that stores all (or significant portions of) the data collected by an organization's multiple business systems. Data from online transaction processing applications and other sources is selectively collected, extracted, sorted and cleaned. Then it is stored in a data warehouse, which is typically housed in an organizations data center.

DBMS (Database Management System): A software package that enables end users or application programmers to share data. It provides a systematic method of creating, updating, retrieving and storing information in a database (DB). DBMSs are generally also responsible for data integrity, data access control, and automated rollback, restart and recovery.

DHCP (Dynamic Host Configuration Protocol): Specification for allocating Internet Protocol (IP) addresses and other configuration information based on network adopter addresses. It enables pooling and allocation and simplifies TCP/IP installation and administration.

Decentralized: The description for an application that is distributed, but originates with the IS organization, has central applications development, and is centrally supported.

Document Management: An application or middleware that performs data management tasks tailored for typical unstructured documents (including compound documents). It may also manage the flow of documents through their life cycles.

DSS (Decision Support System): A system designed to support strategic (vs. operating) decisions. The system tends to be user-friendly and emphasizes ad hoc query, reporting and analysis capabilities. This is in contrast to online transaction processing, which focuses on low-cost, fast-response and predictably structured applications.

Enterprise Resource Planning (ERP): A business strategy that improves shareholder and customer value by integrating manufacturing, financial and distribution functions to dynamically balance and optimize the enterprise's resources.

External Service Provider (ESP): An organization that is a separate legal entity from the contracting company that provides services such as consulting, software development (including systems integration and ASPs) and outsourcing. ESPs supplement the skills and resources of an in-house information services (IS) department.

Extranet: A collaborative, Internet-based network to link an organization with its suppliers, customers or other external business partners and to facilitate intercompany relationships. Extranets use Internet-derived applications and technology to become the secured extensions of internal business processes to external business partners.
General Ledger (GL): A permanent record of accounting transactions summarized according to an organization's accounting and organizational structure. A GL system is designed to summarize entries from subledger systems and produce financial statements and reports.
Global Positioning System (GPS): GPS is a technology for assessing the precise location of any compatible receiver unit, using satellites to provide 24-hour positioning information regardless of the weather.
Groupware: Originally coined to describe a new class of applications designed to provide electronic support for groups of individuals working together toward a common goal. The term has been applied to applications ranging from unstructured electronic mail to rigorously structured workflow systems.
GUI (Graphical User Interface): A graphics-based operating system interface that uses icons, menus and a mouse (to click on the icon or pull down the menus) to manage interaction with the system.
IMS/VS (Information Management System/Virtual Storage):A common IBM host operating environment, usually under the IBM Multiple Virtual Storage (MVS) operating system, oriented toward batch processing and telecommunications-based transaction processing.
Internet: A loose confederation of independent yet interconnected networks that use the Transmission Control Protocol/Internet Protocol (TCP/IP) protocols for communications. The Internet evolved from research done during the 1960s on a network called the ARPANet. It provides universal connectivity and three levels of network services: connectionless packet delivery, full-duplex stream delivery, and application-level services (mainly electronic mail/E-mail).
Intranet: A network internal to an organization that uses the same methodology and techniques as the Internet. It is not necessarily connected to the Internet and is commonly secured from it using firewalls. Intranets are often used an organization’s local-area networks (LANs) or wide-area networks (WANs).
IT (Information Technology): This is the common title for the entire spectrum of technologies for information processing, including software, hardware, communications technologies and related services. In general, IT does not include embedded technologies that do not generate data for organization use.
IT Asset Management: A systematic approach to managing IT assets, including information systems (IS) department staff, end users performing IT support, technology procurement teams, suppliers, facilities, hardware and software.

IT Infrastructure: The underlying technological components that constitute an organization's systems architecture. The seven components of IT infrastructure are hardware, operating system, network, database, development environment, user interface and application.
IT Outsourcing: A contractual relationship with an outside vendor to assume responsibility of one or more IT functions. Outsourcing is usually, but not always, characterized by the transfer of assets-typically facilities, staff or hardware-and can include the data center, wide-area networks (WANs), applications development and maintenance, end-user computing, and IT-enabled business processes.
IVR (interactive voice response): A voice/call-processing option for improving call center functionality and integration. It enables callers to have more flexibility to access information or leave messages. Use of this option can "offload" call volume from agents to the IVR or improve load balancing by having agents handle recorded messages during slow periods. A slowly growing number of IVR developers are now using speech recognition in their applications.
Knowledge Management (KM): A business process that formalizes the management and leverage of an organization's intellectual assets. KM is a discipline that promotes a collaborative and integrative approach to the creation, capture, organization, access and use of information assets, including the tacit, uncaptured knowledge of people.
LAN (Local-Area Network): A geographically limited communication network that connects users within a defined area. A LAN is generally within a building or small group of buildings and is managed and owned by a single organization. The shorter distances within a building or campus enable faster communications at a lower cost than wide-area networks (WANs).
Mainframe: A large-capacity computer system with processing power that is significantly superior to PCs or midrange computers. Traditionally, mainframes have been associated with centralized, rather than distributed, computing environments. Skilled technicians are required to program and maintain mainframes, although client/server technology has made mainframes easier to operate from the user and programmer's perspectives. They are generally used by large organizations to handle data processing for company-wide administrative tasks like payroll or accounts payable.
Middleware: Middleware is more commonly and narrowly defined as the network-aware system software, layered between an application, the operating system and the network transport layers, whose purpose is to facilitate some aspect of cooperative processing.
PBX (Private Branch Exchange) : A telephone switch located on a customer's premises that primarily establishes voice-grade circuits (over tie lines to a telephone company central office) between individual users and the public switched telephone network. The PBX also provides switching within the customer premises local area, and usually offers numerous enhanced features, including least-cost routing and call detail recording.
Personal Digital Assistant (PDA): A handheld wireless computer that serves as an organizer, electronic book or note taker. It typically uses a stylus or pen-shaped device for data entry and navigation.

PKI (public key infrastructure): The software and/or hardware components necessary to manage and enable the effective use of public key encryption technology, particularly on a large scale.

Platform: An individual hardware or software architecture or an operating system.

Portal: Although there is no single model for what constitutes a portal, all portals offer at least five core features: Web searching, news, reference tools, access to online shopping venues and some communications capabilities (e.g., free e-mail and chat). Portals are used to provide a single point of access to multiple software applications. Portals also offer basic Internet access, with a wide range of content and dynamic links to vendor partners and services.

Portfolio Management: A shift from the practice of using a single integrated application for the support of business requirements to using a collection of applications, technologies and services to create a system that addresses the unique requirements of an organization and leverages best-of-breed opportunities.

Procurement: All activities concerned with the acquisition of goods and services, including ordering, negotiations and delivery.

Security: This refers specifically to the ability to provide a secure computing environment — primarily prevention of unauthorized access, malicious data destruction detection, and prevention of disruption of service resulting from deliberate attempts to overload system resources. Although most organization server platforms offer extensive security features, and often compliance with accepted security (e.g., C2) standards, not all standard security features are functional, or effective, in all environments.

Server: 1. A system or a program that receives requests from one or more client systems or programs to perform activities that allow the client to accomplish certain tasks. 2. Can refer to a physical computer ("the server is down..."), but more commonly to any machine that serves applications or information on the World Wide Web.

Application server:

1. A hardware server designated to run applications (but not a database).
2. A single runtime executable that contains modules of application logic.
3. Systems software used to host the business logic tier of applications -- i.e., to manage, optimize, monitor, secure, scale and make its functionality accessible.

Web Server: The central location that hosts Web pages or a Web site and enables a remote "client" (system or program) to access the material held.

Service Desk: A help desk that is equipped with the resources for resolving service requests and problem calls. It gives the customer service representative or end user the ability to efficiently diagnose, troubleshoot and correct technical-support problems, rather than being a "pass through."

SLA (service-level agreement): An agreement that sets the expectations between the service provider and the customer and describes the products or services to be delivered, the single point of contact for end-user problems and the metrics by which the effectiveness of the process is monitored and approved.
Systems Integrator (SI): A company that specializes in implementing, planning, coordinating, scheduling, testing, improving and sometimes maintaining a computing operation. SIs try to bring order to disparate suppliers.
WAN (Wide-Area Network): A communications network that connects computing devices over geographically dispersed locations. While a local-area network (LAN) typically services a single building or location, a WAN covers a much larger area such as a city, state or country. WANs can use either phone lines or dedicated communication lines.
Web Server: The central location that hosts Web pages or a Web site and enables a remote "client" (system or program) to access the material held.
Wireless Data Communication: A form of communication that uses the radio spectrum rather than a physical medium. It may carry analog or digital signals and may be used on LANs or WANs in one- or two-way networks.
WWW (World Wide Web): A hypertext-based global information system developed at the European Laboratory for Particle Physics (CERN) in Geneva. It is a subset of the Internet, technically defined as the community on the Internet where all documents and resources are formatted using Hypertext Markup Language (HTML). HTML, and the related Hypertext Transport Protocol (HTTP), makes it easy to find and view data and documents stored on computers connected to the Internet. HTML creates the links ("hyperlinks") that enable the user to move among many Web documents with the click of a mouse.

Appendix D. IT GOVERNANCE COMMITTEE

The following members of the initial IT Governance Committee and SDDPC management, gave of their time over many months in several meetings to discuss departmental business needs, service delivery models, technical strategies and organizational structures needed to support the City's IT vision.

Ernie Anderson, General Services Director
Tina Christiansen, Development Services Director
Donna Cottingham, Executive Assistant to the City Manager
Hank Cunningham, Community & Economic Development Director
Robert Epler, Assistant Environmental Services Director
Larry Gardner, Water Department Director
D. Cruz Gonzalez, Transportation Director
Lisa Irvine, Financial Management Director
Donald Lovell, SDDPC Chief Operating Officer
Monica Morgan, Deputy Chief, Fire & Life Safety Services
Dianah Neff, Deputy City Manager & Chief Information Officer
Anita Noone, Assistant City Attorney
Ed Oliva, Risk Management Director
Dave Schlesinger, Metropolitan Wastewater Director
Roger Talamantez, SDDPC CEO/President
Anna Tatar, Library Director
Terri Webster, Assistant Auditor & Comptroller
John Welter, Assistant Chief, Policy & Planning, Police
Richard Wilken, Information Technology & Communications Director
Marta Williams, Special Projects Manager
Terri Williams, Chief Deputy Director, Park & Recreation