1.1.
City of Virginia Beach Overview

Virginia Beach, with a population of 440,000+ residents, was named by USA Weekend as the “Best Place to Live” in the nation. As of February 2014, The city employs approximately 6,900 employees with an annual budget of $941 million (excluding schools). Virginia Beach lays claim to being the largest city in the Commonwealth of Virginia and the 39th largest city in the United States. The city has more than 38 miles of shoreline, 79 miles of scenic waterways, numerous historic landmarks, an outstanding public school system, several leading military facilities, and superior cultural amenities. Virginia Beach has long been recognized for excellence in leadership and management, with a highly effective City Manager-Council form of government, and City Council has developed a vision of the city being a “Community for a Lifetime.”

The city provides the community with a wide variety of services, which include police and fire protection, education, library services, health and mental health services, road construction and maintenance, emergency medical services, water, sanitary sewer, storm water, waste management services, and a variety of social services. In addition to these core services, the government provides services requested by the community to improve the quality of life of its residents and visitors. These services include parks, recreation centers, the Virginia Aquarium, the Virginia Beach Amphitheater, the Farmers Market, bike paths, landscaping, and community planning. There are also services that the community needs for the future, including economic development activities, growth management efforts, construction quality monitoring, and strategic planning.

1.2.
IT Environment Overview

The city is a diverse mix of businesses, attractions and people, and the information technology (IT) environment for delivering services is just as diverse and far-reaching. The city’s IT department (ComIT) must support and maintain more than 5,500 computers, 600 servers, 500 mission-critical, line-of-business software applications, and more than 1,000 additional personal productivity software sets to facilitate the work of the employee base. These assets are utilized by 33 departments and agencies, with 105 off-campus (non-municipal center) sites including Police, Fire and Emergency Medical Services stations, libraries, recreation centers, Human Services centers, Commissioner of the Revenue, Treasurer offices, Public Utilities, and Public Works.

ComIT manages a sophisticated network of technology infrastructure to deliver services on this scale. The city has 200 miles of optical fiber and networking equipment, including integration with leased fiber and third-party connectivity services through multiple IT data centers. Additionally, ComIT provides the communications services required to conduct
daily city business. More than 3,000 telephones and 6,500 radios (public safety and non-public safety) are deployed throughout the organization. Each full-time and part-time employee with a network account has access to voicemail, email, instant messaging, and video conferencing.

ComIT Services Model

The city formed the Department of Communications and Information Technology (ComIT) in July 1999 to provide a framework and service delivery model to operate and manage IT services. ComIT is an internal support agency that serves all departments and agencies by providing a technology foundation that supports the city’s ability to conduct daily business and achieve strategic goals. The department’s services center around ten operational areas:

1. **Applications Support**:
   - Business Analysis
   - Applications and Business Systems Lifecycle Management
   - Application Design & Development
   - System & Application Integration
   - Applications & Business Systems Testing
   - Data & Information Management
   - Database Administration
   - Applications & Business Systems Engineering
   - Quality Assurance & Management (systems and applications)

2. **Systems Support**
   - Computing Hardware Installation & Support
   - Email & Enterprise Communications Support
   - Mainframe Support
   - Packaging & Deploying Software
   - Patching
   - Hardware Testing
   - Engineering Analysis, Design & Ongoing Support
   - Antivirus & Firewall Protection
   - Distributed Printing Services
   - Tier 1 Problem Resolution
   - Data Center Operations

3. **Information Security and Privacy Office**
   - Establishing & Maintaining Security Policy
   - Information Security Monitoring
   - Compliance, Accreditations & Auditing Support
   - Threat Response & Mitigation
   - Litigation Holds
   - Training & Education

4. **Technology Support Center**
   - First Responders for Technology Incidents
   - Service Desk Technical Support
   - Account Management
   - Change/Release Management Support

5. **Technology Project Management Office**
   - Project Management & Support
   - Project Portfolio Management
   - ComIT Capital Improvement Program (CIT/CIP) Management & Support
   - Resource Planning & Workload Planning for Projects

6. **Telecommunications**
   - Local Area & Wide Area Network Support
   - Emergency Communications & Citizen Services Network Support
   - Intelligent Traffic System Network Support
   - Network Security
   - ORION Regional Radio Network Support
   - Microwave System Support
   - Digital & Analog Radio Support
   - Paging System Support
   - Voicemail, Automatic Call Distribution (ACD)
   - Interactive Voice Response (IVR) System
   - Desktop Telephony Support & Billing

7. **Multimedia Services**
   - Internal & External Communication Planning and Support
   - Municipal Cable Television Programming & Operation
   - Public Meeting Coverage
   - Photography
   - Graphic Design
8. **Center for Geo-spatial Information Services (GIS)**
   - GIS Base Mapping Production
   - GIS Base Mapping Layers & Standard Map Products
   - GIS Project Management
   - GIS Enterprise Governance Coordination
   - GIS Web Services
   - Intranet/Internet GIS Sites
   - GIS Web Hardware & Software
   - GIS Layers for Web Use
   - Host GIS Information on Relational Database Management System (RDBMS)

9. **City/School Printing Services**
   - Printing Requests
   - Multifunction Printer Operation & Support

10. **Business Center**
    - Billing
    - Accounts Payable
    - Payroll Support
    - Personnel
    - Mailroom

The **IT Services and Support** appendix discusses these services and provides insight to the challenges ComIT faces while being asked to provide more diverse solutions in rapidly changing technology landscape. It is clear that ComIT must continue to mature by leveraging resources to improve performance, provide high-value project work and communicate the necessity and demands of ongoing operational work. The increasing growth of the IT footprint demands better tools for managing the lifecycle of assets and activities.

### 1.3. Impetus for Change

A new Chief Information Officer (CIO) joined the city of Virginia Beach in September 2012. The first task requested of the CIO by the Management Leadership Team (MLT) was to conduct an assessment of the current state of ComIT and to develop a report and conduct briefings of the findings to the MLT and department directors. The CIO’s first strategic initiative was to perform an internal and external departmental assessment of people, processes and technology to determine ComIT’s capabilities and establish a strategy under new leadership. The first part of the assessment included interviews with departmental and executive leadership for feedback on ComIT’s strengths and weaknesses. Through these interviews, the CIO learned about the history of dissatisfaction with the ComIT organization and its model of service delivery.

A second part of the evaluation included surveys sent to departmental leadership as well as ComIT leadership and members. The survey was intended to measure satisfaction with ComIT services. Questions focused on quality and timeliness of service delivery, flexibility, data protection, skill sets, attitude, effective partnership, and other attributes of the ComIT and customer relationship. The survey also included an open-ended question that allowed respondents to provide feedback about IT services. While some of the survey results were positive, there were areas of concern indicating that ComIT should make improvements in partnering and enabling technology across the organization.

The third part of the evaluation included a partnership between ComIT and Gartner facilitators using a tool known as IT Score which is modeled after the Capability Maturity Model Integration (CMMI) and maturity framework (for more information about Gartner, see section 1.4.1). The IT Score tool calculates the IT maturity through a series of assessments that evaluate capabilities and generates one overall score for the organization. The types of capabilities that were reviewed included infrastructure and operations, project management, security, and application management.

The overall maturity score for the IT enterprise was 2.5 – or “Enabling,” as the IT Score tool describes the maturity level. The full results of the IT Score assessment can be reviewed in Appendix IT Score Summary. A 2.5 maturity score indicates room for improvement, and the city engaged Gartner to perform further assessments (discussed in section 1.5) and help ComIT build an IT strategic plan and roadmap for the next five years. The impetus for change was demonstrated through departmental and executive feedback and validated through the IT Score tool.
Level 2 Maturity Characteristics

Maturity descriptions are typical characteristics one would see within the organization, but it should be noted that in some areas, the organization may be performing with a higher or lower level of maturity. It also should be noted that the Gartner IT Score assessment was conducted at the start of the CIO’s tenure and does not reflect the growth of the organization almost a year later. The following information describes Gartner’s ‘typical’ characteristics of a Level 2 Enabling organization, but not all characteristics can be ascribed to ComIT.

In a Level 2 organization, processes are established in work teams or departments, but there is little consistency in approach across the organization. The CMMI term “repeatable” is used because it indicates the repeatable nature of discrete processes. The Level 2 organization depends on the leader or manager and the tools necessary to lead his or her work area. The team or workgroup performs specific, repeatable processes for each major activity, though the process itself varies from team to team. There’s not much cross-activity definition, and each discipline is conducted independently, like a stovepipe. Little proactive work is done to change or improve things.

At Level 2, although the CIO is an executive role, it reports to a C-level executive and is not a member of the most senior leadership team. The CIO is accountable for the cost and performance of a defined information-focused and technology-focused organization. The CIO is a competent functional manager and an effective responder to business leaders and their requirements.

At Level 2, the business leads in the selection and prioritization of IT-intensive solutions. The business perception is that IT is a service provider that enables its business customers’ plans, wants and needs. The business shares its plans with IT, expects IT to deliver its requirements, but does not include IT directly in the planning.

Bottom Line Up Front

Through the self-assessment, the CIO identified the following initial, high-level goals and opportunities to transform ComIT to a service-optimized enabler of technology. A more detailed explanation of the methodology used to derive these strategic opportunities is discussed in the CIO Self-Assessment Discussion Appendix.

Organizational Opportunities

Empower Virginia Beach Members and Citizens with Technology Innovations
Create New Collaborative Relationships
Improve System Sustainability, System Performance and System Security
Leverage Strategic Investments

ComIT Opportunities

Develop Virginia Beach's First Comprehensive IT Strategic Plan
Develop a New IT Technology Architecture Roadmap
Perform Benchmarking
Improve Budget Management
Improve Operations and Support
Develop a Continuous Improvement Program

1 Source: Gartner, Inc. CIO Self-Assessment Survey
1.4. **Master Technology Plan Development**

ComIT’s vision is focused on delivering quality services and solutions to its customers – anywhere and anytime. To help achieve this goal, ComIT has developed the city’s Master Technology Plan for fiscal years (FY) 2015 through 2019. This document is the culmination of a lengthy and detailed assessment of ComIT’s current capabilities and an analysis of the critical initiatives that the department must undertake in the next five years to help Virginia Beach achieve its strategic business objectives. In some cases, ComIT is already ahead of the curve and is planning or executing Gartner’s strategic recommendations. In other cases, some recommendations are stretch goals that ComIT will be able to achieve as organizational maturity and process discipline grows. The technology plan is intended to be open and transparent and shared across all levels of the city government. It is also intended to be a living document to be reevaluated and updated on a three-year cycle.

### Gartner Technology Group Engagement

After the initial maturity self-assessment discussed in section 1.3 was complete, the city engaged Gartner again to identify strategic initiatives and plan the transition to become a service-optimized partner to the city. See section 1.5 for more elaboration on the assessment process and detail. The outcome of the Gartner assessment and resulting strategic initiatives are the foundation for this document and plan.

**Gartner** is a leading information technology research and advisory company. Founded in 1979, Gartner is headquartered in Stamford, Connecticut and has 5,300 associates, including 1,280 research analysts and consultants and clients in 85 countries. Gartner clients include public and private sector CIOs and senior IT leaders, business leaders in high-tech and telecom enterprises, and technology investors. Gartner clients encompass 12,400 distinct organizations. In addition to working with private sector organizations, Gartner has extensive experience working with the public sector. Below is a small sample of recent, comparable engagements with public sector organizations.

#### Figure 2: Gartner Public Sector Recent Engagements

<table>
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<tr>
<th>Organization</th>
<th>IT Strategic Planning</th>
<th>IT Governance</th>
<th>Enterprise and Technology Architecture</th>
<th>Portfolio Management</th>
<th>Organization Assessment</th>
<th>Project and Risk Management</th>
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</tbody>
</table>

2 Source: Gartner, Inc.
IT Strategy Development

Today’s new realities require continuous planning to ensure strategic fit with constantly changing business needs. Strategy should include:

- Maximizing demand and supply by balancing and integrating imperatives for growth, optimization and risk-taking.
- Doing the right amount of things, with a level of investment commensurate with expected return.
- Monitoring trends and drivers for impacts to return on investment (ROI), time to market, capability effectiveness and future business requirements.
- Engaging in continual strategic planning processes, not simply one-and-done strategic plans, which are invariably outdated and forgotten.

A sustainable IT strategy should address three fundamental underpinnings:

- **Demand**: What does the business need, and how will IT contribute?
- **Supply**: What capabilities will IT provide to meet that demand?
- **Control**: How will the business and IT balance opportunities for growth, optimization and risk-taking given changing demand conditions and with the appropriate investment in supply?
Cost-driven optimization, or “doing more with less,” is not a viable option by itself. The new normal global economy requires businesses to maximize outcomes while minimizing supply expenses. It’s a necessary near-term approach given the current economic climate, but what about one, three or five years from now? Cost optimization alone could miss opportunities and put long-term business value at risk.

CIOs must transition beyond merely managing resources, to taking responsibility for managing results. CIOs have the opportunity to reimage IT to meet business needs for growth, understand implications of cloud services and economics, and raise the strategic relevance of IT. CIOs are being asked to increase the digitization of their organizations to drive greater innovation on flat budgets. CIOs should address business value from the outside and people from the inside. Demonstrating relevance of IT investments to business results can be a CIO's greatest asset or most potent liability.

IT organizations without a deliberate strategy often describe current capabilities as ‘accidental.’ In the long run, accidental IT strategies are substantially more expensive. They miss opportunities for growth and differentiation, especially with new emerging (information, operations, communications) technologies. They incur the carrying costs of low-value, high-risk projects. They require substantial, real investments to correct, reorganize, modernize, standardize, rationalize and simplify.

Source: Gartner, Inc.
Source: Gartner, Inc.
Today more than ever, managing IT performance and delivering IT-intensive projects is necessary, but not sufficient, to create business, IT and CIO success. CIOs must understand that business results and business growth are critical for their success. This means:

- Being more disciplined about assessing value and benefits for new capabilities and investments.
- Clarifying business impact of IT contribution to business growth.

- Ensuring optimization and reuse of trusted data assets.
- Working with the rest of the organization to plan and prioritize IT services and investments based on business priority.

More formally, IT strategic planning is an ongoing declaration of mission, vision and objectives, framing the right opportunities for attaining the business strategy, setting the roadmap for attaining those capabilities, and guiding all facets of the journey.

Figure 7: Functions of Strategic Planning

<table>
<thead>
<tr>
<th>IT strategic planning will....</th>
<th>IT strategic planning consists of....</th>
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</thead>
</table>
| Enable or support a business strategy  
  - Whether or not the business strategy is well articulated,  
  - Existing or new, stable or volatile |
| Clarify priorities and trade-offs  
  - Anchored in core values and principles  
  - Guides consistent and transparent decision-making |
| Balance visionary thinking with pragmatic realities  
  - Long-term in mind, but  
  - Bounded by current constraints and capabilities |
| Encourage an intentional, ongoing journey  
  - Manage change rather than react to it  
  - Adjust tactically rather than historically |
| Incorporate external perspectives  
  - Ensure completeness and viability of vision  
  - Eliminate blind spots and learn from others |
| Executive / Board Level Summary  
  - Business strategy and capabilities required  
  - IT’s contribution to business success  
  - Demand, control and supply implications for IT |
| IT Strategy  
Sets the strategic direction for IT’s contribution to business success. |
| IT Strategic Plan  
A road map plan of the major initiatives to be executed by the IT organization in growing or transforming the business. |
1.5. Approach and Methodology

ComIT engaged Gartner to facilitate a series of activities and tasks that would ultimately lead to the creation of a citywide master plan for information technology. The outcome of the Gartner engagement provided a roadmap that will allow ComIT to transform into a service-optimized organization that will more effectively partner with other departments and support strategic objectives.

The Gartner consulting approach has key characteristics that are comprehensive and incorporate emerging technologies and business trends, but also is pragmatic in working with the specific client, environment and culture. Gartner works with clients in a collaborative environment leveraging joint client-Gartner teams. This collaborative approach leads to better outcomes and facilitates knowledge transfer. The Gartner-client partnership is consensus-oriented, involving key business and IT stakeholders throughout the process to facilitate understanding and buy-in. Gartner is flexible, and the approach is tailored to specific client needs and context.

Gartner approach key inputs:
- Business trends (e.g. social media)
- Business strategy
- IT trends (e.g. mobility, cloud)
- Existing IT plans or strategies

Figure 8: Gartner’s Five Key Initiatives

Gartner approach key outputs:
- Strategic vision
- Defined initiatives
- Actionable recommendations
- Communications plan
- Consensus and buy-in

The Gartner methodology employs a series of five key initiatives that are discussed in the sections below.

8 Source: Gartner, Inc.
Understand Business Demand (Key Initiative 1)

During the Gartner engagement, the first task or initiative was to assess the business demand. A key deliverable of the Understand Business Demand activity is the identification of the city’s business imperatives. A business imperative is an initiative or objective that the city would need to accomplish to make meaningful progress toward achieving its strategic vision. The business imperatives will direct the IT imperatives, which are identified in the next phase of the methodology. The outcome of this activity and discussion of the imperatives can be further reviewed starting in section 4.2.

In order to identify the business imperatives, Gartner partnered with ComIT leadership to conduct interviews with key business executives, including the city manager and deputy city managers. Gartner also interviewed community of interest (COI) groups, including public safety, Public Works, Public Utilities, Parks and Recreation, Human Services, Libraries, and Economic Development, as well as many others. Overall, 150 members representing 33 departments were included in the interview process. See Appendix Understand Business Demand Summary of Findings to view the full Gartner deliverable that more fully elaborates this activity. See Appendices IT Interview Guide and Business Interview Guide to better understand the interview processes and format.

The focus of the interview process was to assess ComIT’s strengths and weaknesses and to identify the city priorities (business imperatives) that ComIT will support. In the focus groups, Gartner asked three fundamental questions:

1. What are your business priorities?
2. How might technology help you address these priorities?
3. How is ComIT supporting the city’s technology needs today?

Gartner identified specific needs for each agency and related communities of interest in the interviews and focus group meetings. There were several cross-cutting themes:

1. **Analysis and Reporting.** All city departments asked for simpler and more direct access to the most complete and up-to-date data and information needed to support decision-making.

2. **Online Access to City Services.** Citizens and business customers increasingly expect online access to city services — including payment of bills, fees and fines, submittal of permit applications and plans, checking the status of applications and requests for service.

3. **Transparency into City Operations.** Customers are demanding transparency into the city’s business operations — including simple access to current budget and fiscal information.

4. **Mobile Computing.** A rapidly growing part of the city’s business operations now depends on mobile access to information systems — to upload and download data from the field.

5. **Content (Document) Management.** Many of the city’s business processes today are paper and labor-intensive and involve manual routing of documents for approval. Digitizing city business documents/forms and automating workflow could help streamline these processes.

Gartner also noted some consistent comments regarding ComIT’s strengths and opportunities for improvement. A sample of these initial findings is presented below:

**STRENGTHS**

- Secure and reliable network
- Responsiveness in resolving common IT issues/questions (Service Desk trouble tickets)
- Excellent operations and support for applications governed by advisory groups (e.g. GIS)

**OPPORTUNITIES FOR IMPROVEMENT**

- Lengthy delays in deploying software or software upgrades to production (package issues)
- Perceived flaws in process/criteria for reviewing and approving proposed IT projects
- Higher than expected costs for ComIT to scope and manage IT projects
◆ Need for better training to help users leverage new applications more effectively (e.g. SharePoint)

◆ Limited cross-departmental visibility into applications or technologies that could be shared

◆ Complex ComIT organization resulting in confusion regarding points-of-contact for IT services

The following departments and groups contributed to the focus group effort.

- Agriculture
- Benefits
- Budget and Management Services
- City Attorney
- City Auditor
- City Clerk
- City Management Leadership Team
- Clerk of Courts
- ComIT Leadership Team
- Commissioner of Revenue
- Convention and Visitors Bureau
- Cultural Affairs
- Economic Development
- Emergency Communications and Citizen Services
- Emergency Medical Services
- Fire
- Finance
- Housing
- Human Resources
- Human Services
- Library
- Media and Communications Group
- Museums
- Organization Development Office
- Parks and Recreation
- Planning
- Police
- Public Utilities
- Public Works
- Real Estate Assessor
- Strategic Growth Areas
- Treasurer
- Volunteer Resources
- Voter Registrar

Determine IT Direction (Key Initiative 2)

The objective of this second initiative or activity is to identify the key IT imperatives that will become the foundation of the IT strategy and roadmap. Once Gartner identified and validated the city’s business imperatives, the next step was to determine the IT imperatives necessary to enable the business strategy and confirm the vision and operating principles for moving forward.

An IT imperative is an action or initiative that ComIT would need to undertake to maintain and improve the ability to accomplish or better accomplish one or more business imperatives. IT imperatives were identified in interviews with city leadership and COI interviews and are based on the current strengths and weakness of ComIT.

The relative alignment between the IT imperatives and business imperatives was determined through a scoring session with IT leadership. The IT imperatives that best supported the business imperatives were identified. The results of the scoring session can be viewed in Appendix Determine Business and IT Alignment. The IT imperatives became the precursor of the IT strategy, confirming the city’s most important business imperatives and the IT imperatives required to enable these objectives. The IT imperatives were consolidated into the strategic initiatives that are the hallmark of the ComIT Master Technology Plan. The outcome of this activity and discussion of the IT imperatives can be reviewed in section 4.3.

An additional outcome of the Determine IT Direction activity was the identification of the IT Vision Statement and IT Operating Principles. Both are elaborated upon in sections 2.3 and 3.1 respectively.
Assess Capabilities (Key Initiative 3)

As a third activity, ComIT assessed its current capabilities to identify gaps that could limit effective execution of a strategy before any initiative was included in the IT strategy roadmap. To assess ComIT’s present state, Gartner conducted the following current-state analyses of the city’s IT organization, technologies and processes:

1. An assessment of ComIT’s organization and operations to include the Project Management Office (PMO) and radio capabilities
2. An assessment of processes, services, tools and IT governance
3. An IT benchmark of ComIT’s infrastructure and operations
4. A portfolio analysis of approximately 30% of the city’s most critical business applications
5. A benchmark of the city’s Oracle application

The analyses above engaged ComIT team members who conducted research into the current state of applications, financial expenditures, total personnel (FTE and FTC) utilization, IT governance, and processes. Each analysis was an extensive effort that required effective partnering between ComIT subject matter experts (SMEs), leadership and the Gartner consultants.

The approach and findings for each of these assessments is presented in detail in the body of this document starting in Section 5. The gaps and other findings from these assessments highlighted several organizational, operational and technical challenges for ComIT to address in the Master Technology Plan.

Determine Required Actions (Key Initiative 4)

The main objective of this fourth activity is to establish the core elements of the strategic plan and identify initiatives to close IT capability gaps. Gartner partnered with ComIT leadership to define the IT governance model and identify how the city could improve governance effectiveness across five strategic domains: IT Principles, IT Strategy, Enterprise Architecture, Business Outcomes, and Fiscal, Business and External Relationships. A second objective of this activity was developing a plan to mature PMO capabilities. The third objective was recommending an effective organizational structure to better align with business and improve agility and risk management. Gartner partnered with ComIT to develop a road map of activities to support achieving the target organizational structure. The figure below describes how all the activities previously discussed are pulled together to form an encompassing IT strategy and vision.

Figure 9: Determining Required Actions

![Figure 9: Determining Required Actions](image)

9 Source: Gartner, Inc.
Develop Roadmap (Key Initiative 5)

The Gartner engagement culminated with the development of the IT Strategy and Roadmap. The Gartner roadmap deliverable can be viewed in its entirety in Appendix IT Strategy and Roadmap. Thirty-two initiatives were identified that would position ComIT to best support business objectives and are discussed in greater detail in Section 6 of this document. The initiatives included in the roadmap can be categorized into four pillars of IT transformation:

1. Transform Service Delivery
2. Build Better Business Solutions
3. Strengthen Governance
4. Improve Infrastructure and Operations

Gartner worked with ComIT to develop high-level benefits, resource requirements, and a rough order of magnitude cost estimates for the initiatives. Initiatives have been prioritized, and key dependencies between them have been identified. A preliminary budget and timeline has been established for implementing the strategic initiatives.

Fundamentally, an IT strategy and roadmap provides a plan for making improvements in the way an organization uses its people, processes and technology to achieve its vision and supporting objectives. Of these three factors, changes made in its people (staffing and organizational structure) are the most challenging, delicate and critical. Without the right balance of skilled resources, no organization can achieve related improvements in processes or effectively leverage technology to meet strategic goals.

For this reason, Gartner strongly recommends that the city not pursue the immediate elimination of vacant positions or a haphazard reassignment of ComIT staff. Instead, the realignment of ComIT’s organizational structure and staffing must be founded on a well-thought-out transition plan that includes an approach to best utilize existing resources.

This transition process is outlined in a set of roadmap initiatives focused on improving ComIT’s service delivery capabilities, but it essentially includes the following key steps:

- Developing a transition plan
- Repurposing positions to areas of need
- Reviewing the roles and responsibilities
- Conducting a staff skills assessment to determine readiness for change
- Training staff members
- Communicating change to internal and external stakeholders

1.6. IT Planning Continuum

The rapid pace of technological innovation is increasing the residents’ demand for new, citizen-centric services. In addition, internal departments’ and groups’ desires to leverage better, faster, more comprehensive technology places increased demand on ComIT resources. Value must be assessed and priorities carefully selected. This makes it critically important for the city to review, approve and fund the strategic initiatives presented in the Master Technology Plan in a timely manner, using consensus-building processes involving key stakeholders throughout the enterprise.

This strategy document is the five-year IT master plan for the city of Virginia Beach. It is part of a continuous, long-term IT planning process that is intended to provide a structured approach to IT planning to ensure business success for the city. It is a dynamic, living document that will be maintained and updated on a regular basis, as required to keep it current. The strategy document has been developed with the input of city leadership and the communities of interest. Elements of the IT strategy have been crafted for the express purpose of supporting and enabling this partnership.

1.7. Strategic Foundations

The Gartner engagement identified many strategic initiatives as part of the IT Strategy and Roadmap. These initiatives will position ComIT to support the city’s business imperatives, goals and objectives. Although there are many initiatives, they can be summarized into four high-level objectives, or foundational pillars. The pillars support the effective delivery of city services, which in turn supports the businesses and citizens of Virginia Beach.
Figure 10: Strategic Initiative Foundations

CITIZENS

CITY SERVICES

I. Transforming Service Delivery
II. Building Better Business Solutions
III. Strengthening IT Governance
IV. Improving Infrastructure & Operations

Resourcing
Benchmarking
Transforming Service Delivery (Pillar I)

Evolving to a fully customer-centric and service-optimized IT organization is a challenging journey that requires fundamental changes in the way ComIT is organized and staffed, as well as the relationship between ComIT and customers. Transforming service delivery involves a commitment to defining and delivering quality technology services and measuring performance to ensure that ComIT consistently meets the expectations of our customers.

There are six initiatives within the pillar that will allow ComIT to transform from a functional model to a service-optimized model.

<table>
<thead>
<tr>
<th>Service Delivery Initiatives</th>
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<tbody>
<tr>
<td>S-1. Create a business relationship management (BRM) function within ComIT. Individuals serving in this new role would proactively engage with other city departments to learn their respective business issues and problems and work collaboratively with ComIT staff in planning, design, deployment and enhancement of IT applications and IT services to help address these issues and problems.</td>
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<tr>
<td>S-2. Define IT processes and services. Well-defined IT processes and services are critical for ComIT to reliably establish, communicate and meet the performance expectations of the city’s numerous internal and external customers. This initiative involves a significant maturation in all processes and services, but especially in release management (software package updates) and incident and problem management.</td>
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<td>S-3. Acquire tools to help enable implementation of IT processes and services. A suite of IT service support management (ITSSM) tools can help enable the effective and efficient delivery of ComIT’s evolving process and service capabilities. The suite should include IT self-service tools.</td>
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<td>S-4. Reorganize ComIT to support a service-centric business model. ComIT’s current organizational structure needs to be aligned to support a service-centric and customer-focused model. This change in organizational structure must be implemented to enable other service-related transformation initiatives involving resources and improvement in internal processes.</td>
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<tr>
<td>S-5. Develop stronger resource capacity planning and management capabilities. ComIT needs to develop the capability to analyze, plan and manage resources across the organization – and not solely within current divisional silos. This competency will allow the department to better balance its workload with available resources, which in turn will help ComIT meet the project commitments and service-level expectations of its customers.</td>
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<td>S-6. Modernize IT job classes and specifications. Nearly half of ComIT’s technical workforce is working under a set of systems analyst or programmer analyst job specifications that have not been revised since 1990. Additionally, most of the city’s current IT job classifications/series are radically misaligned with roles needed in a service-optimized and customer-centric IT organization. Both of these issues will continue to negatively impact ComIT’s ability to attract and retain IT staff in a competitive market.</td>
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<td>S-7. Create a sustainable mobile applications strategy and development function. Virginia Beach has a growing need to embrace mobile applications and mobility now more than ever before. The city has an increasing number of users accessing city web services through mobile applications. In February 2012, there were 45,000 visits to VBgov.com from mobile devices. In February 2013, the number increased to 72,000. This increase shows that the city has a large pool of users on mobile devices that they must start supporting.</td>
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Building Better Business Solutions (Pillar II)

Getting smarter in the way ComIT manages business systems and applications means leveraging solutions already owned on an enterprise level to benefit a greater number of users. It also involves looking at the applications as a portfolio and looking at ways to keep the cost of development and support down, while increasing quality and user satisfaction.

There are eleven initiatives within the pillar that will allow ComIT to start building better business solutions.

### Business Solution Initiatives

1. **B-1. Formalize business analysis and documentation processes.** ComIT needs to formally develop guidelines and standards for interacting with its customers to define, document and validate business processes and requirements. By establishing this business analysis framework, ComIT can more clearly identify the stated and unstated business needs of its customers and more ably address these requirements in the business solutions it develops.

2. **B-2. Mature application portfolio management (APM) capabilities.** This initiative is focused on maturing ComIT’s APM organization and processes to ensure repeatability and efficiency in the department’s application development work. The anticipated benefits include increased responsiveness to customer requirements, prioritized guidance and automated portfolio management processes.

3. **B-3. Investigate “best fit” application management practices.** This initiative involves reviewing results from ComIT’s initial application portfolio assessment to understand what is working well for applications that were highly rated. By leveraging lessons learned about high-performing functions and applications, ComIT can improve service delivery – via an adaptable management model, “right-sized” operational costs and appropriate matching of applications and management practices.

4. **B-4. Establish an Applications Innovation Framework.** This initiative is focused on developing a framework that adequately supports new and fluid application development processes. The anticipated benefit is a stronger capacity for ComIT to fulfill customer requirements and to accommodate fast-changing processes and overall organizational agility.

5. **B-5. Improve capability for departments to conduct their own analysis and reporting.** This is an enterprise-wide initiative that would allow employees across the city to more easily access existing information systems to conduct their own analysis and reporting. The anticipated benefits would be savings in employee time and effort for analysis and reporting activities, as well as more timely access to information required to support decision-making. A critical element of this scope is improved analysis and reporting for information in the city’s Oracle Enterprise Resource Planning (ERP) system. However, users of other city applications also indicated a need for improved analysis and reporting functionality.

6. **B-6. Leverage functionality in existing systems to automate key business processes.** The scope of this initiative is to configure and deploy modules in selected commercial off-the-shelf (COTS) systems in which the city has already invested, to automate business processes that are largely manual and paper-based. Possible examples include code enforcement and plan review workflow capabilities in Accela, and work order management functionality available in Hansen. Additionally, the city may be able to expand its existing Oracle ERP footprint to automate accounts payable processes and possibly provide employee performance management and/or automated workflow and enterprise content management functionality.
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<td>B-7. <strong>Implement an enterprise-wide Customer Relationship Management (CRM) solution.</strong> An enterprise CRM solution would help provide a 360-degree view of any citizen who contacts a city department requesting information or services. Integration with other city systems could also support automated routing of work orders and follow-up responses to citizens when a service request is fulfilled.</td>
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<td>B-8. <strong>Provide citizens with better access to city services and information.</strong> Citizens and businesses increasingly demand that the city become more open and transparent in the sharing of information. Similarly, they expect the city to run more like a modern business, with opportunities to make payments and submit service requests online. A data warehouse containing transactions and records from multiple applications, such as Hansen and Accela, could serve as a master data source that is available for citizen consumption. This initiative is focused on improving VBgov.com to provide both interactive capabilities and enhanced search functionality – via online and mobile access options.</td>
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<td>B-9. <strong>Design and build interfaces between systems.</strong> Much of the data that departments require for operational and reporting purposes is maintained in other city applications – or in systems maintained by the state or other external entities. Building interfaces between these internal and external systems could significantly reduce the manual and paper-based exchange of information, while also improving the currency and quality of data.</td>
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<td>B-10. <strong>Provide appropriate training to end users of the city’s enterprise applications.</strong> A good deal of the functionality and utility of the city’s enterprise applications may not be efficiently or effectively leveraged if end users aren’t well-versed in how to use these applications. Providing training in how to best use these enterprise applications helps ensure that the city is maximizing the value of its IT investments.</td>
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<td>B-11. <strong>Implement an Enterprise Content Management (ECM) system for digital document management.</strong> Today, various city departments still create and manage a significant number of paper records and forms, largely using manual processes to route, review and file these documents. Some departments are using Microfiche solutions to file selected documents. An enterprise ECM solution could significantly streamline the city’s document management processes by converting selected files to digital records and forms, scanning other documents, and leveraging automated workflow to facilitate much quicker review and approval cycles. An ECM solution could dramatically improve internal work processes as well as client-facing interactions.</td>
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Strengthening IT Governance (Pillar III)

The new IT governance model will facilitate the collaboration between ComIT and other city organizations. ComIT will involve the departments and city leaders more fully in deciding how to direct and manage the limited capital funding available for investments in new or enhanced business solutions. This also requires the consideration of business benefit and total cost of ownership of all proposed business solutions and the resources ComIT has available to support them.

There are six initiatives within this pillar that will strengthen the overall IT governance model and better engage city leadership and departments in decision-making.

**Governance Initiatives**

- **G-1. Establish an Investment Review Board (IRB).** An IRB should be led by the MLT and comprised of individuals representing city business leadership. The IRB should be responsible for 1) reviewing and approving proposed investments in new or enhanced business applications/solutions; 2) deciding the relative priority of each approved investment within the city’s IT project portfolio; 3) monitoring the status of each project; and 4) reviewing and approving proposed changes in ongoing projects. ComIT would assume a supporting role in this process.

- **G-2. Require business case justification for IT investments.** A business case should be required to justify any proposed IT capital investment and for any approved CIP project that has not yet begun. A business case, when properly prepared and evaluated, helps ensure that the city invests only in IT capital projects that have a legitimate ROI or other business benefit, and considers the long-term total cost of ownership the city would incur to develop, maintain and support the proposed investment.

- **G-3. Establish a Project Portfolio Management function within ComIT.** The project portfolio management role would support the IRB, CIO and Project Management Office (PMO) in prioritizing and managing the city’s portfolio of IT projects. This function is critical to establishing sound governance – the individual in this role would provide enterprise-wide visibility into the actual costs and benefits of the city’s IT projects and support the IRB in prioritizing and managing current details/status for approved IT projects.

- **G-4. Establish an architecture review process.** ComIT needs to set up an Architecture Review Board (ARB) to work with the Chief Technology Officer (CTO), Applications Support Coordinator, and the CIO to develop and/or refine the city’s conceptual architecture and architecture principles, as well as review proposed changes to the enterprise architecture (EA). The ARB can help ensure that proposed new applications/solutions are compliant with approved enterprise architecture, and consequently, ensure that the city invests in solutions that ComIT can effectively support and maintain.

- **G-5. Broaden project status reporting.** Reports on the status of ongoing IT projects should be presented to the IRB and should include actionable information regarding the cost, schedule, work complete, risks, issues, etc. for each project in the approved IT project portfolio. Details should be sufficient to allow the IRB to resolve critical issues, review/approve change requests, and suspend or cancel troubled projects when warranted. Online dashboards could be developed later to present the status of active IT projects at any time.

- **G-6. Establish flexible application architecture.** This initiative involves developing a flexible application architecture framework that is forward-looking, while addressing cost and efficiency objectives. Leveraging results from Gartner’s Application Portfolio Analysis, the city’s application architecture standards should particularly address business value factors of integration and complexity, as well as technical value indicators of scalability and extensibility. Compliance reviews of application architecture standards would be included in the ARB processes outlined in Initiative G-4.
Improving Infrastructure and Operations (Pillar IV)

Improving the processes and technologies used to store, manage, protect, access and share data is fundamental to the vision to make information available to customers - anytime and anywhere. This also involves looking at ways to increase network bandwidth, reduce the cost of operations, and ensure critical systems are operational and accessible when needed the most.

ComIT is developing a new strategy for a broad range of cloud-based solutions. As defined by the National Institute of Standards and Technology (NIST), ‘cloud computing’ is a model for enabling ubiquitous, convenient, on-demand, network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. Cloud-based applications can provide advantages that include increased access, enhanced disaster recovery/service continuity and lower lifecycle costs.

In fact, the city operates a hybrid cloud environment today which consists of a private and public cloud environment. City data center(s) have a significant investment in technology assets including virtual servers. Virtualization provides added flexibility and scalability by pooling resources for computing, storage and networking. This allows the city to more easily load-balance across the whole infrastructure. Virtualization also enables the city to easily extend resources to an off-site public or private cloud environment. Many of the initiatives outlined in the Improving Infrastructure and Operations pillar will leverage “cloud computing” opportunities. For example:

- **I-1. Implement a Next Generation Network**: The next generation network will facilitate the transfer and/or off-loading of important data to technology partners for improved service continuity and will enable greater utilization of off-site hosted solutions.

- **I-2. Implement an enterprise data storage solution**: The new enterprise data storage solution currently being implemented has the capability to facilitate data replication for customers who desire the highest levels of service continuity and data availability. The storage solution will place customer data in the appropriate tier of storage based on the required access and retention of the data, including the capability to replicate to an off-site location.

- **I-6. Develop and implement a Disaster Recovery/Business Continuity (DR/BC) plan**: The disaster recovery/business continuity plan will explore cloud strategies to determine the best opportunities for data protection and service restoration. For any new technology service or system implemented for the city of Virginia Beach, we will include the requirement to analyze the possibility of on-premise vs. off-premise (hosted/cloud) solutions.

As ComIT continues to evolve and refine its cloud strategy, the pace at which the city will realize the value of cloud computing will accelerate by evaluating safe, secure cloud computing options before making any new investments.
There are eight initiatives within the pillar that will improve the city’s infrastructure and ensure operational availability of the city’s systems.

**Infrastructure Initiatives**

I-1. **Implement the Next Generation Network.** Expand network fiber to connect off-campus locations to the municipal campus, and implement network redundancy between facilities (super-sites). The proposed solution would provide improved services for voice, data, video and Internet. This investment is expected to have a life expectancy of more than 30 years and aligns well with the city’s current strategies of 1) engage in systems thinking; 2) maintain a long-term view; 3) achieve multiple positive outcomes; 4) be proactive and prevent problems; 5) create relationships and partnerships; 6) ensure sustainability; and 7) create an accurate, positive community image. In addition, this aligns to the sociological factor of technology advancements within the city’s 2040 vision and may have a direct impact on a 1) connected community; 2) learning community; and 3) diverse community.

I-2. **Implement an Enterprise Data Storage solution.** With the advent of new digital still image and audio/video technologies, and their day-to-day use in the performance of business and mission functions, the Virginia Beach Police and Public Utilities departments are producing an ever-increasing number of sizeable digital data objects that require storage sharing, long-term retention and management. The objective of this initiative is to acquire and implement additional network-based digital data storage to support increasing current and long-term digital data storage needs of Virginia Beach.

I-3. **Implement an Enterprise Data Integration solution.** Virginia Beach maintains data in numerous different systems, using a variety of platforms and data formats. Integrating data from these systems is increasingly important to conduct analysis and reporting for operational purposes, as well as to meet the public demand for enhanced openness and transparency. A data warehouse containing transactions and records from multiple applications, such as Hansen and Accela, could serve as a master data source that is available for citizen consumption. This solution would provide the technology foundation to enable data integration citywide.

I-4. **Maintain the Integrity and Security of Corporate Information.** This initiative encompasses a comprehensive set of tasks aimed at maintaining effective information security policies and procedures, as well as training programs to raise information security awareness, and conducting periodic assessments to ensure that employees throughout the city are following these policies and procedures.

I-5. **Retire the city’s mainframe platform.** The city’s mainframe costs are exceptionally high when compared to peers in Gartner’s benchmark study. There are applications still running on the mainframe today – only two of which are heavily used. ComIT should develop and execute a plan to migrate these remaining applications off the mainframe and retire this platform.

I-6. **Develop and implement a Disaster Recovery/Business Continuity (DR/BC) plan.** ComIT has already begun work to define and implement a DR/BC plan for the city. Completing this plan and executing it are critical so that the city is assured access to its critical information systems and data during and after a major hurricane or other similar disruptive events.

I-7. **Develop a sustainable funding source for essential technology infrastructure.** As Gartner’s infrastructure and operations benchmark report indicates, Virginia Beach is underinvesting in core technologies that support the applications and information system services that end users often take for granted. Windows and data storage spending for the city is less than that of its peers in the benchmark study, while data network investment is only half that of IT organizations in Gartner’s peer comparisons. Although ComIT is developing plans for making improvements in these areas, the city needs to establish a reliable long-term funding mechanism to ensure these core technologies are maintained and sustained. A charge-back model may be an equitable option, as it provides a means for users to pay for the services that ComIT provides.
Infrastructure Initiatives

I-8. Develop, fund and execute a citywide radio system strategy. The city has prepared a Radio Sustainment Plan which addresses many current gaps highlighted in Gartner’s assessment. The city now needs to develop a citywide radio system strategy that includes an objective evaluation of alternative solutions/approaches, governance mechanisms to support lifecycle investment decisions, and sustainable funding to ensure that all components of the recommended system are properly maintained and supported once deployed.

Resourcing and Benchmarking Operations

The results of the Oracle e-Business Suite benchmark analysis indicated the city falls below government and private peers for Oracle staffing levels. The city has lean staffing and low spending on personnel costs for Oracle production support and sustainment.

The two deficient knowledge areas include database engineering and quality assurance management, specifically in the areas of test management, configuration management and systems management. This was identified as part of a benchmarking assessment, and there is a similar need in other large systems groups in the organization. In addressing this knowledge gap in the Oracle system, the city will begin to address the gap throughout the organization.

Resourcing Initiative

R-1. Obtain positions for Oracle Database Engineer and Quality Assurance Analyst. Gartner recommends that the city obtain additional funding and resources to meet expected increase in demand for ongoing Oracle support, growth and expansion. ComIT should obtain positions for an analyst to perform quality assurance and testing functions and an Oracle database administrator to bring the city into staffing alignment with their peers.