NORTHROP GRUMMAN

VIRGINIA TECHNOLOGY PASSPORT PROGRAM
PPEA CONCEPTUAL PROPOSAL

Submitted to:

Commonwealth of Virginia
Chief Information Officer

Submitted by:

Northrop Grumman Information Technology

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IT Serving the State and Local Enterprise

May 21, 2004

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Northrop Grumman

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Executive Summary

Northrop Grumman is proposing to develop a public-private partnership with the Commonwealth of Virginia using the guidelines of the Public-Private Education Facilities and Infrastructure Act of 2002 (PPEA) to leverage industry proven practices to pioneer a 21st century model for information technology (IT) governance and operational excellence. This partnership will achieve the Virginia Information Technologies Agency's (VITA) vision to provide significant cost savings and provide outstanding service and technology solutions to support customers and address business needs with a more effective and innovative system.

This partnership meets requirements of the Virginia Public Procurement Act (VPPA) by providing specific economic, effectiveness, and resource benefits to the Commonwealth:

- Savings of 25% on recurring IT expenses and elimination of up-front costs to fund transformational activities planned for implementation over the next 5 years
- Continuing the revitalization efforts in Richmond by constructing a new technically advanced, consolidated IT facility built and managed in partnership with the Virginia Bio-Technology Research Park
- Increasing the number of high-paying IT jobs in Newport News through the use of the Herbert H. Bateman Virginia Advanced Shipbuilding and Carrier Integration Center
- The creation of a unified IT communications center in the Virginia Southwest Promise region, helping to bridge the technology gap between Southwest Virginia and other regions of the Commonwealth
- Process improvements via best practices
- Increased levels of performance and quality
- Faster time to implementation of more effective solutions
- Allow scarce government resources to focus on critical priorities

Northrop Grumman has a unique relationship with the Commonwealth. Approximately 32,000 active Northrop Grumman employees, more than a quarter of our total workforce, reside and work in Virginia. We have a keen responsibility to ensure success of the Governor's "One Virginia" vision, as our employees are located throughout each region of the Commonwealth. In addition to being the largest non-retail private employer, Virginia is home to our East Coast corporate headquarters and three Northrop Grumman Sectors.

The reasons to accept this partnership go beyond Northrop Grumman's investment in the Commonwealth. It is the successful transformation of our company and the services we provide to our government clients that build the foundation of our proposal:

- Northrop Grumman has saved $1B through our internal IT transformation efforts combining 18 companies over the past 9 years
- Northrop Grumman is one of two companies that has proven experience in statewide consolidated outsourcing
- Northrop Grumman has the proven and industry recognized technical and management capabilities to transform IT and build a spirit of cooperation with all of the Commonwealth's trusted partners.

Leveraging our experience in transforming the Defense Department and civil federal government, we can best position VITA to transform the Commonwealth's IT programs.

Our proposal integrates the knowledge and experience of Northrop Grumman with the completed and ongoing efforts of the Commonwealth put into motion by the Governor's 2002-2006 Strategic Plan for Technology. The consolidation of IT support services for 90 Executive branch agencies, transformation of IT procurement, and increasing the technology infrastructure throughout all regions of the Commonwealth is a monumental task. The Commonwealth has been successful in taking the first steps to transformation by the Governor and Legislature working cooperatively to create VITA. Now the challenge is to deliver on the promises, and Northrop Grumman believes this proposal provides the best method to achieve success as outlined by the Commonwealth:

- Improving technology
- Attracting new investment
- Revolutionizing government services
- Reducing costs

Our solution provides an approach that can be implemented in phases. While we believe it can accelerate cost savings by decreasing the implementation timeframe, it is structured to move forward at a speed selected by the Commonwealth. Our solution develops a service partnership between Northrop Grumman and VITA to:

- Provide facilities management and consolidation of mainframe, midrange, and distributed server platforms using the current Richmond Plaza location until construction of a new consolidated operations center in downtown Richmond
- Provide management services to support the distributed computing environment, statewide network services, and enterprise applications
- Provide a structured technology reinvestment and refreshment program
- Provide for enhancements to the VITA Customer Care Center and future development of a Customer Support Operations Center in Southwest Virginia
- Provide a complete asset management program integration with customer support and mainframe service operations
- Provide complete disaster recovery services through use of the VASCIC in Newport News and Northrop Grumman's strategic partnership with SunGuard
- Provide continuous evaluation of emerging technology leveraging current Commonwealth technology investments in the Virginia Center for Innovative Technology and the Institute for Infrastructure and Information Assurance
- Provides proven, structured end-to-end management processes and analytical planning solutions that bridge the critical gap between vision statements and IT investment decisions
- Provide the creation of an independent quality assurance program office within VITA to support Agency business transformation programs based on industry recognized best-practice standards created by Northrop Grumman

As noted earlier, this public-private partnership will allow the Commonwealth to realize substantial cost savings. Savings are provided in the form of actual cost reductions in management and operation of IT

assets; tapping into and leveraging technology, economies of scale, and resources of Northrop Grumman; reducing the capital costs of implementing a modern, secure IT infrastructure; and expansion of the Commonwealth electronic government and e-business programs. Illustrative examples of available savings that are achievable through this program are highlighted in the following chart.

Objectives	Available Savings	Description
Raised floor consolidation	30%	Consolidation of IT sector raised floor systems by re-racking of equipment, server storage, application stacking, consoles, secondary storage, and creating lights out environment.
Servers consolidation	25%	Consolidation of workload of multiple servers onto fewer, larger, and more easily managed servers which will be supported by local technical staff which will result in high resource sharing between projects.
Improved utilization of current hardware assets	30%	Reallocate current assets to support development and business continuity when newer technology is implemented to support production environment. Retire all leased equipment where it makes business sense.
Backups consolidation	25%	Centralization and rehosting of backup/recovery to central servers by taking advantage of existing tape library. Implement sever-less backup and company owned off-site storage.
System management and support processes reengineering	20%	Centralization and reengineering of systems and applications, processes, and procedures.
Contracts consolidation	25%	Reduction and consolidation of maintenance license and other related contracts.
Business continuity consolidation	35%	Consolidate business continuity servers to reflect new architecture thus reducing the number of server and support cost.
Organization consolidation	30%	Establish centralized organization to be responsible for all systems and application management.

In total, Northrop Grumman has structured a partnership that allows the Commonwealth to redirect an estimated 25% of current IT spending to better serve the citizens and customers of Virginia.

In addition to the cost savings, the partnership provides for high technology job creation in Southwest Virginia. Along with job creation, the partnership results in new construction and facilities, providing an increased tax base to the local communities throughout the Commonwealth.

We proudly take on the challenge of partnering with VITA, and while technology is the enabler of transformation, the effective use of people resources is the key to success. Leveraging Northrop Grumman's world-class integration process will foster the cross-agency cooperation needed for VITA to succeed. This process will uncover synergies among the various governmental departments and is essential to making the Commonwealth a better, more competitive organization to compete effectively in

the global economic marketplace. By leveraging the fundamental strength of Northrop Grumman, VITA can infuse the Commonwealth workforce with fresh thinking and broader experience.

Northrop Grumman looks forward to building on the conceptual offerings of this proposal, validating our assumptions, and through cooperative communication with VITA, provide a detailed public-private partnership proposal for evaluation by the Commonwealth.

1.0 Qualifications and Experience

Northrop Grumman is proposing a conceptual solution under the Public-Private Education Facilities and Infrastructure Act of 2002 (PPEA). This project, dubbed by Northrop Grumman as the Virginia Technology Passport Program, provides an opportunity for the Commonwealth to take advantage of this innovative procurement vehicle to achieve cost effective and efficient IT operations and management.

Among the benefits of using the PPEA for the development of this project are:

- Faster delivery to meet urgent public need for improved services and cost savings
- Cost and operational efficiencies achieved by standardization

Our conceptual solution provides the Commonwealth with a proven systems integration approach to the Commonwealth's IT challenges while balancing price, quality and schedule considerations. The goal is to deliver a true partnership solution that delivers cost savings, provides operations efficiencies, and allows maximum flexibility for the Commonwealth.

1.A Organization

Identify the legal structure of the firm or consortium of firms making the proposal. Identify the organizational structure for the project, the management approach and how each partner and major subcontractor ($1 million or more) in the structure fits into the overall team. All members of the operator/offeror's team, including major subcontractors known to the proposer must be identified at the time a proposal is submitted for the Conceptual Stage. Identified team members, including major subcontractors (over $5 million), may not be substituted or replaced once a project is approved and comprehensive agreement entered into, without the written approval of the Commonwealth. Include the status of the Virginia license of each partner, proposer, contractor, and major subcontractor.

1.A.1 Legal Structure

Northrop Grumman is a publicly held, $26 billion global enterprise, with corporate headquarters located in Los Angeles, California and Arlington, Virginia. With over 120,000 employees and operations in all 50 states and 25 countries, Northrop Grumman serves U.S. and international military organizations; federal, state and local governments; and commercial customers. Northrop Grumman is the largest provider of systems integration and IT systems and services to the U.S. government.

As a result of carefully implemented acquisitions over the last nine years, including the acquisition of Logicon, Litton, Newport News Shipbuilding, and TRW, Northrop Grumman has advanced its internal capabilities to manage and support the most complex and demanding programs. Today, we are a leading systems integration company offering extensive technology and management expertise to successfully support the Virginia Information Technology Agency's (VITA) vision to establish Virginia as a global leader in the use of technology in government.

Northrop Grumman's strategic processes have been rewarded in the marketplace and hailed in the press, as evidenced in our distinction as the "2002 Company of the Year" by *Forbes Magazine*.

Northrop Grumman's internal IT integration process gained us recognition by *CIO Magazine* as one of the "Top 100" companies in 2002 for impressive progress in enterprise integration. General Motors Vice Chairman, Bob Lutz further recognizes our expertise in a 2002 *Fortune* article saying, "They're better at it

(integrating and managing acquisitions) than anyone I've seen in the world. Northrop has well-trained integration teams, guidelines and processes that are 'laid out like a battle plan'."

Northrop Grumman is a global leader in the transformation of government activities. Information Technology (IT) is at the core of all our transformation efforts. Our innovative services and proven methodologies provide cost-saving alternatives to traditional government processes to allow our clients to focus on their core competencies. A few of our large government transformation efforts include:

- Designing and managing more than a billion parts from 3,000 suppliers in 47 states in the creation of the next generation of aircraft carriers at Newport News. Northrop Grumman and the Navy spent substantial time defining the ship and creating windows of opportunity for installing emerging technology up front. The most recently commissioned carrier, the USS Ronald Reagan's (CVN76) technical innovations include the integration communications advanced network, digital communications on a laser fiber backbone, touch-screen consoles, and more than 1,325 miles of cable and wiring.
- Leading the technology and communications integration efforts for the Army's Future Combat System (FCS). Northrop Grumman is the prime contractor, managing the collaborative efforts of Boeing and SAIC to transform the Army's logistics decision support and network management systems. Northrop Grumman is the top industry partner for the FCS, with contracts in excess of $450 million.
- Partnering with the Internal Revenue Service (IRS) on the $23 billion Tax System Modernization project which includes a complete redesign and long-term modernization of its computer-based information processing systems that support both the administration of the nation's taxes and the IRS internal operations
- Developing and supporting the information systems for the Centers for Disease Control (CDC). This is a $511 million, seven-year contract to develop and support information systems that aid CDC public health research, surveillance, and intervention efforts and serve its centers, institutes and offices nationwide.
- Reducing the costs of technology management to the State of Texas. The West Texas Disaster Recovery and Operations Center (WTDROC) is a state-owned facility in San Angelo, Texas, established by the 75th Legislature to provide Computer Operations Services and Disaster Recovery Services for tax-supported organizations. Northrop Grumman manages the computer center under the oversight of the Department of Information Resources (DIR).

Northrop Grumman is one of a select few information technology sourcing providers to have a global reach. This reach provides us with economies of scale and a breadth of experience not available with smaller organizations. Because of our size, Northrop Grumman has proven results across the full spectrum of information technology services, including facilities management, business process outsourcing, and managed services.

The Northrop Grumman Corporation 2003 Financial Statement, provided in Appendix A, further identifies the Corporation's legal structure.

1.A.2 Project Organizational Structure

Northrop Grumman envisions a two-phased organizational structure in support of this program. The first phase occurs during the transition of agency support services to VITA. During this phase, Northrop Grumman would merge our efforts with VITA and become part of the Integration Management Office (IMO).

To support effective ongoing conduct of the managed partnership, Northrop Grumman will leverage our recognized industry best practice in management and organizational structure. This structure is implemented internally to supply strategic information solutions and technologies across Northrop Grumman. Through our transition from a $3B aerospace company to a $26B global information technology, defense, and systems integrator, our management and organizational structure has supported:

- Integrating tens of different IT organizations (Litton alone had 26 different organizations) into one shared service and addressing all the cultural aspect associated with the integration
- Migrating the active directory infrastructure for logon and authentication to corporate IT resources, and migrating all non-standard e-mail environments to a corporate-wide exchange e-mail infrastructure to facilitate common e-mail, calendaring, and secure collaboration
- Transitioning hundreds of individually operated Wide Area Network (WAN) infrastructures to a single Northrop Grumman Global Network (NGGN) backbone-standard and integrating over 50 Internet Point-of-Presence and firewalls installed throughout legacy organizations to provide the platform to share documents and data transparently while creating a foundation for centralized security and monitoring
- Consolidating 30 data centers in the last 9 years into the primary Northrop Grumman data center
- Establishing a common desktop operating environment throughout the enterprise
- Expanding the existing systems management server infrastructure to maintain the common software distribution baseline, and migrating support services from dozens of call centers to one
- Consolidating IT sourcing processes and aggregation of the IT supplier spending of the corporation to leverage spending and improve supplier discounts, terms, and external opportunities

The management and organizational structure used to support these efforts has delivered measurable business value and service to Northrop Grumman, including savings of $49M in 2002, $58M in 2003, and an anticipated total savings of over $1B. In addition to cost savings, these initiatives have increased technology services, leading to *CIO Magazine* naming Northrop Grumman one of its "CIO 100" for Impressive Progress Made Toward Enterprise Integration, and our CIO receiving the *Information Systems Executive of the Year* award for 2003 by the David D. Lattanze Center at Loyola College in Baltimore, Maryland. The Center is a nationally recognized center of excellence dedicated to fostering management collaboration and excellence in business and information technology.

The management and organizational structure preliminarily identified in **Exhibit 1-1** is designed to fit within the context of the existing Commonwealth governance process. The objective of this structure is to develop a managed partnership with the Commonwealth that effectively leverages existing IT oversight, advisory, and supervisory boards, such as the Joint Council on Technology and Science, Council on Technology Services, and the Information Technology Investment Board.

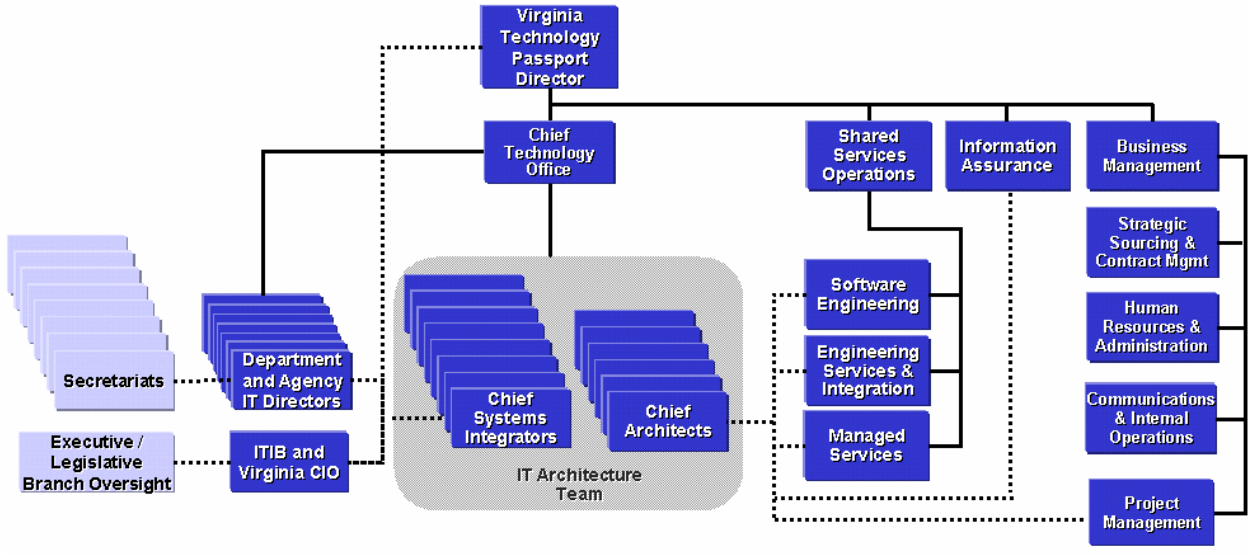

Exhibit 1-1. Ongoing Proposed Project Organizational Structure.

The size and complexity of VITA's technology consolidation and strategic positioning efforts will encompass services and solutions from multiple industry partners. A critical element in the delivery of value through this proposed managed partnership is Northrop Grumman's association with the best technology vendors in the business. Northrop Grumman's partners are recognized around the world as leading providers of information technology. Each partner brings a unique expertise to our solutions, including hardware, software, networking equipment and more. We expect to work in a joint relationship with our partners and the Commonwealth to deliver total solutions in support of the major reengineering initiatives under VITA's consideration. A partial list of our prominent business partners is shown in **Exhibit 1-2**.

Type Of Alliance	Companies
Networking	Cisco Systems, Enterasys, Marconi, Network Appliances, Nortel Networks, NetScout Systems, Tandberg
IT Security	McAfee, Symantec, ISS, NAI, ActiveCard, General Dynamics, IBM, Kyberpass, RSA Security
Enterprise Management Tools	BMC Software, BAE Inc., Marimba, Micromuse (CCIS), Remedy, HP, Peregrine, Altiris, Cognos, SPSS
Enterprise Products, Systems and Management	Dell, EMC, Gateway, HP, IBM, Quantum, StorageTek, Veritas
Enterprise Applications	EA, IBM, Oracle, SAP, webMethods, Siebel, Peoplesoft
Database, Development & Web Tools	Autonomy, Avaitus, BEA, Broadvision, IBM, Izodia, Microsoft, Oracle, Satyam, Sybase, Verity, Vignette
Business and Technology & Consulting Services	Accenture, BearingPoint, Current Analysis, Gartner, Deloitte Consulting, HP, IBM, Microsoft, SITC
Supply Chain	Adexa, Oracle, PTC, i2 Technologies, Lawson, Peoplesoft, SAP

Exhibit 1-2. Northrop Grumman Partner Alliances.

By leveraging industry partners across our enterprise, Northrop Grumman achieves cost savings and strategic direction. We recognize that the Commonwealth has trusted IT partners that may differ from Northrop Grumman, and this is where our success as a systems integrator provides unparallel value. As a global systems integrator, Northrop Grumman has the specific experience and proven management methodologies to support large scale, complex programs. Through our systems integration experience, we will develop a program structure, integration VITA's current and future trusted IT partners to deliver superior IT services throughout the Commonwealth.

1.A.3 The Northrop Grumman Team

Northrop Grumman offers the best solution to the Commonwealth's IT integration and systems needs. Northrop Grumman has a 30-year heritage of providing advanced IT solutions, managed IT services and business process services for hundreds of government and public agency clients. As a Commonwealth partner, we will serve as an integral part of VITA and ensure that all performance and schedule objectives are met. In partnership with VITA, we will provide program management, systems integration, facilities management, distributed infrastructure support services, managed services, network services, electronic government transformation, call center consolidation, process and change management, independent quality assurance, continuous evaluation and planning, and integrated management of specific transformation projects. Our systems integration experience and methodology provides the Commonwealth with access to the best-qualified vendors to advise and implement applications, business process operations, and design/build services. As was discussed in Section 1.A.2, Northrop Grumman has not disclosed a static project team but will leverage its position with numerous partners to assist VITA in reaching operational excellence.

1.A.4 Management Approach

Northrop Grumman has more than 30 years of experience in IT integration projects having done so for numerous states, counties and cities around the nation. The Northrop Grumman management approach is to deliver solutions on time and within budget.

The methodology we will employ to accomplish this project is essentially the same as we have implemented on several previous projects. It is characterized by the set of values established within the Northrop Grumman corporate culture. At the core of our value system is our commitment to provide total customer satisfaction. Customer satisfaction is the outcome of a time-tested process that includes many factors, such as:

- Accurate recognition of all project technical realities
- Formation of a Project Team with best-of-class qualifications
- A comprehensive understanding of the customer's requirements
- Creation of a partnership between the Northrop Grumman Team and the Commonwealth that includes ongoing communication
- Implementation of time-proven project management processes that result in project success
- Assignment of a well-qualified management and program leaders.

As with all large programs, Northrop Grumman will form an effective partnership with the Commonwealth. In order to achieve total success for the project, partnership requires a mutual understanding of, respect for, and commitment to delivering in accordance with each partner's responsibilities.

Successful project management requires a commitment to processes such as Configuration Management, Quality Assurance, Change Control, Risk Management, and Schedule Management. Our commitment to and implementation of the Capability Maturity Model Integrated (CMMI) methodology will also contribute to successful project implementation. These process methodologies are fundamental to the Northrop Grumman business process culture.

Northrop Grumman is committed to maintaining full cooperation with the owner of any project. This proposal is offered in the spirit of partnering between Northrop Grumman and the Commonwealth. Northrop Grumman will efficiently deliver innovative project financing, state-of-the-art infrastructure and infrastructure systems, design, engineering, communication and system integration services as required by the Commonwealth for its mission critical needs.

1.A.5 Virginia License Status

Northrop Grumman Information Technology, Inc. holds a current Virginia business license number F034167.

1.B Experience

Describe the experience of the firm or consortium of firms making the proposal including experience with projects of comparable size and complexity. Describe the length of time in business, business experience, public sector experience and other engagements of the firm or consortium of firms. Describe the past technical performance history on recent projects of comparable size and complexity, including disclosure of any legal claims, of the firm or consortium of firms. Describe the past safety performance record and current safety capabilities of the firm or consortium of firms. Include the identity of any firms that will provide design, construction, and completion guarantees and warranties, and a description of such guarantees and warranties.

1.B.1 Northrop Grumman

Northrop Grumman is a $26 billion global enterprise with over 120,000 employees serving U.S. and international organizations; federal, state and local governments; and commercial clients. As a result of carefully implemented acquisitions over the last eight years, including the acquisitions of Logicon, Litton and TRW, Northrop Grumman has advanced its internal capabilities to manage and support the most complex and demanding Information Technology (IT) managed services programs. Today, we are a leading outsourcing and systems integration company offering extensive applications and technology expertise and experience to successfully guide and support the Commonwealth of Virginia's strategic IT initiatives.

With historical company roots dating back to 1929, Northrop Grumman has over 30 years of IT experience. Northrop Grumman is a premier provider of advanced IT solutions, managed IT outsourcing services and business process services for hundreds of government and public agency clients nationally. Customers include a wide range of cities, counties, states, and federal government clients. Northrop Grumman's portfolio of capabilities includes IT Management Solutions (Data Center Operations, Disaster Recovery, Seat Management Services, Transaction Processing, and System Integration), Homeland Security Solutions (Emergency Response Solutions and Information Assurance Solutions), Criminal Justice Solutions (Criminal Justice Information Systems /Integrated Criminal History Systems, and Automated Fingerprint Identification Systems), Human Services Solutions (EBT, Child Support Collections, Child Welfare, Income Maintenance, Medical Assistance, and Social Services), and CRM and ERP Solutions.

Northrop Grumman is known for its ability to master the largest, most complex systems challenges for government, military and business clients. Focused on advancing solutions that contribute to the welfare of the global community, our technology leadership spans multiple business areas: strategic systems, missile defense, intelligence, surveillance and reconnaissance, homeland security, command and control, and technical services and training.

To illustrate our depth of experience and expertise in providing similar services for governments of similar size and complexity, selected managed services contracts and complex systems integration projects are summarized below. This includes numerous projects that illustrate government application system experience.

1.B.2 Northrop Grumman Relevant Public Sector Experience

West Texas Disaster Recovery and Operations Center (WTDROC) for the Texas Department of Information Resources—Northrop Grumman provides data processing operations at the WTDROC through a master contract with the State of Texas. Northrop Grumman has diligently worked on increasing the volume and service provided by the WTDROC to leverage efficiencies, economies of scale, and cost management improvements across all agencies served. Further, Northrop Grumman has invested heavily in staff and infrastructure to provide a first-class operation that delivers services on time and to agreed-upon levels of service. The WTDROC offers superior service, delivering state-of-the-art equipment and software, security from cyber intrusions, superior protection against natural disasters such as tornadoes or floods, and full back up to deliver business continuity without the loss of data. As an example, the Office of the Attorney General's Child Support Division relies on the WTDROC to have child support data available 24 by 7. The WTDROC offers an agency the assurance that it's processing will be performed accurately and on time, or monetary penalties will apply. WTDROC has been extremely successful in meeting Service Level Agreements and in improving services and processing. In fact, we have met all SLAs for the past 12 months. This translates into substantial cost savings for the State and for the individual agencies housed at the WTDROC. Northrop Grumman, has deployed the centralized infrastructure necessary to undertake the processing currently managed by the existing distributed agency data centers, thereby freeing up expenditures associated with managing these individual environments, including expensive floor space, staff, software maintenance and upgrades, utilities, disaster recovery, and facilities management and maintenance. Agencies that outsource to the WTDROC have no further need for capital expenditures related to data processing and can reduce IT staff, thereby avoiding future salary, fringe benefit, hiring, and pension expenses. See Section 1.C – References for more details on this project.

Facilities Management Support Services for City of Grand Rapids, Michigan—Northrop Grumman IT's primary role is to provide the City's Director of Information Technology with the technical staff necessary to plan, design, develop, implement, support and maintain the IT functions for the various Government Offices. We provide more than 50 qualified staff members on-site at the appropriate City government locations. Work being performed under the T&M contract includes data center operations, legacy systems support and maintenance, network engineering and support, file and application server administration, database design and administration, application development and maintenance, Internet and Intranet development, Geographic Information System (GIS) applications development and maintenance, PC hardware and software support, help desk support, in-house training including content development and delivery, and publishing a Bits & Bites bi-monthly Newsletter. Northrop Grumman IT has been able to maintain a long-term relationship of more than 24 years with the City of Grand Rapids by providing increasing levels of support as the IT support functions change due to the implementation of new technologies. Maintaining a successful partnership with the City is attributed primarily to the

professionalism and dedication of our employees as well as their close interaction with key government staff.

IT Support Services for the Louisiana Department of Social Services (LA DSS)—Northrop Grumman currently provides network, server, application and workstation support services to the (LA DSS). Our 20-person team is intricately involved with all support aspects of the 6000+ user, 300+ office network from performing Cisco IOS upgrades to making sure Microsoft Windows applications function properly. Although the primary focus of the activities is technical support, Northrop Grumman has supplied several "value added" services including organizational assessments and recommendations. When Northrop Grumman IT began work with the LA DSS in September 2002, the organization structure of LA DSS was based purely on hardware boundaries. For example, there was a section dedicated to PC support and this section was responsible for support of all functions related to the desktop — the same applied to servers. Over time, this organization model began to hinder the LA DSS technical support team as more and more applications spanned both the PC and Server platforms (network printing). As a result, Northrop Grumman, using industry standard practices, recommended to DSS to split all application support from both groups and combine them into one. With this change, DSS was now able to support "end-to-end" functionality for the user through one group and in most cases one technical resource. Ultimately, this reduced the backlog of helpdesk cases by 50% and greatly increased user productivity.

State of California Child Support Automation System (CCSAS) Project Management Services— Northrop Grumman IT provides PMO Support Services for the CCSAS Project. We provide project management processes, tools, support, analysis, information and recommendations to the California Department of Child Support Services (DCSS) and the California Franchise Tax Board (FTB) Project and Program Managers. The specific tasks performed include: task management and reporting; PMO management where we provide leadership, coordination and guidance to State and consultant PMO staff; and project management, mentoring, support, education and training to State staff as well as develop a detailed transition plan for the State Manager to assume direction of the PMO. Also for each PMO project, we provide integration management, scope management, risk management, issue management, schedule management, performance and status reporting, management process improvements/best practices, review project management deliverables and technical reviews, and configuration management. Also, we have assisted in redefining their governance structure in order to streamline the organization.

Alabama Child Enforcement System—Northrop Grumman is contracted by the State of Alabama's Center for Information Services Partnership (CISP) to provide 24x7x365 data processing services, data center hosting, facilities management, and disaster recovery planning and test execution for a statewide comprehensive child support enforcement system, the Alabama Location, Enforcement, and Collection System (ALECS). After 9 years of service, Northrop Grumman was recently awarded a new 3-year, $19M contract to continue ALECS operations support. Northrop Grumman is responsible for maintaining the communications circuits from the Northrop Grumman data center located in Albuquerque, NM, to the State's data center in Montgomery, AL. Northrop Grumman maintains the OS/390 system and third party software that is required to support and process ALECS. The data center team is responsible for overall OS/390 systems performance; Database 2 (DB2) systems performance; database planning; system performance and tuning; capacity analysis; system and data backup and recovery; and disaster recovery planning and test execution. The system currently operates on an IBM z800 model 2066-0A2 CMOS processor running OS/390 at Northrop Grumman's Albuquerque, NM data center.

Illinois Electronic Benefits Transfer System Integration for the Illinois Department of Human Services—Northrop Grumman is responsible for the uninterrupted operation of the Illinois EBT system. Northrop Grumman maintains the processing of the central site hardware and maintenance of software

applications, management of central processing telecommunications networks, and operation and management of associated hardware.

Arkansas Department of Human Services (ADHS)—Since July 1996, Northrop Grumman has been managing information systems and providing information support services to ADHS. These systems support 15 different ADHS divisions and over 8,000 ADHS employees who provide a wide range of welfare, child welfare, and other human services for Arkansas citizens. Northrop Grumman employs approximately 80 staff members who are co-located within the client facility in Little Rock, AR. Last year, the State awarded Northrop Grumman a new 5-year contract for continued outsourcing services. The total projected contract value over the life of both contracts is approximately $70M. Northrop Grumman supports over 40 major application systems that operate on various platforms. These services include strategic technology planning; application maintenance and system enhancements; help desk, desktop and networking support; and replacement of mainframe legacy systems with open system technology. As our team approaches the end of 2003, we are on track to achieve Level 3 Capability Maturity Model Integration (CMMI) Certification.

Commonwealth of Virginia Performance Monitoring and Evaluation Services (PMES) Contract for the Partnership Project, Department of Taxation—The Commonwealth of Virginia's Department of Taxation (TAX) is in the process of developing an Integrated Revenue Management System (IRMS) to replace its integrated taxation legacy system. TAX selected Northrop Grumman to provide the independent validation and verification (IV&V) and project oversight services.

Fairfax County Public Safety Communications Center—Northrop Grumman installed Fairfax County, Virginia's original CAD system in 1987. Northrop Grumman received a contract to replace the outdated mobile data terminal (MDT) system with a new mobile data computer system (MDCS) installed in 900 public safety vehicles. The new system automates the dispatching of police, fire, emergency medical services, and animal control for the County. The system uses the UCS MDT product on a Motorola private data network. The County is also implementing an automated Field Reporting System. Fairfax County is a long-term Northrop Grumman client, for which the company provides CAD facilities management, 24-hour support, and hardware maintenance for the Public Safety Communications Center. Fairfax County Public Safety Communications Center has recently completed the installation of this integrated system including mobile computer terminals, a radio frequency backbone, and integration to the existing Northrop Grumman CAD System. The police and fire departments use the system for real-time access to the associated CAD systems and to the law enforcement databases available through VCIN and NLETS.

Joint Base Operations and Support Contract (J-BOSC)—The premier reference of Northrop Grumman's capability to manage facilities efficiently and cost effectively is our Joint Base Operations and Support Contract (J-BOSC) at the Cape Canaveral Spaceport. As the managing partner of Space Gateway Support (SGS), we employ over 2,800 people who provide facilities services, engineering services, protective services, logistics operations, information technology, occupational medicine and environmental health services, and environmental management to NASA's Kennedy Space Center (KSC), Cape Canaveral Air Force Station, and Patrick Air Force Base. The contract and our performance are a pioneering achievement for both the Government and SGS. For the first time, launch support and base operations responsibilities for the Kennedy Space Center and the Air Force are combined into a single support service contract blending the assets of two distinct federal agencies to more effectively achieve a common goal. We implemented over 60 innovations since 1998, and, as a consequence, are performing our work for 18 percent less than the predecessor contractors. We achieved the status of an OSHA VPP Star company, are ISO 9001 (Quality) and 14000 (Environmental) certified, and were recognized as the 2002 KSC Large Business Contractor of the Year.

We achieve performance excellence and cost savings through our objectives-driven, performance-oriented approach to management. We adhere to stringent performance metrics established in cooperation with our Government customers. We established Reliability Centered Maintenance (RCM) as the key to our approach in managing and maintaining the Spaceport's facilities, reducing preventive maintenance costs by 5 to 10 percent annually and ensuring 100 percent operational availability of all facilities. RCM makes use of state-of-the-art technologies, for example, infrared cameras, to discover maintenance problems early and reduce downtime and failure of equipment.

Data Center Support For The Executive Office Of The President (EOP)—Northrop Grumman has provided information technology services for the Executive Office of the President since October 1997. The scope of Northrop Grumman's services includes providing essential infrastructure support through the Information Systems and Technology (IS&T) Directorate of the EOP. Northrop Grumman technical experts provide critical data center operations; help desk and network operations support; network management for the multi-building EOP local area network; external network interface support; firewall and network security implementation; web site support for Whitehouse.gov; and software support for infrastructure utilities and miscellaneous reporting requirements. See Section 1.C – References for more details on this project.

U.S. Department of State Enterprise Network Management—Northrop Grumman performs management and oversight of the design, operations, and lifecycle support for the Department of State's worldwide information systems. This involves enterprise architecture support, management and operations of IT communications infrastructure. Northrop Grumman's staff is responsible for all centrally deployed and managed components of the modernized Department of State network IT infrastructure and the evolving classified network infrastructure, serving the entire overseas Diplomatic Corps.

Treasury Communications System – Northrop Grumman provides desktop-to-desktop data services for the entire Department of Treasury and other federal and commercial locations for domestic and international requirements through the Treasury Communications System (TCS) contract. This was first accomplished by installing high-speed networks to support applications that include upgraded e-mail, electronic commerce, security services and videoconferencing. Now leveraging ATM transport services provided by commercial carriers, Northrop Grumman provides network security, network operations, and network management services.

U.S. Department of Homeland Security Communications Network – Northrop Grumman was recently awarded a seven-year contract to design, implement, and operate the Homeland Secure Data Network (HSDN). HSDN is the foundation for consolidating five legacy wide-area networks down to one network for both classified and unclassified information, leading to one infrastructure for DHS. A single infrastructure is critical for DHS, as it is a collection of 22 agencies, each formerly operating with different procedures and processes. The first phase of HSDN is scheduled for completion by the end of the year. When complete, HSDN will cover 600 federal, state and local sites, including government agencies and law enforcement groups. The network will allow for the sharing of intelligence data between federal, state and local law enforcement. The Network Operations Center (NOC) to support HSDN is being built in Virginia, with Northrop Grumman employing up to 150 new positions in 2005.

1.B.3 Legal Claims

Exhibit 1-3 below summarizes the status of Northrop Grumman legal claims:

Legal Claims
United States v. Newport News Shipbuilding, Inc., Civil No. 1:03-CV-142. On February 3, 2003, the Government filed suit against Newport News Shipbuilding, Inc., alleging that, from 1994-99, it misclassified certain costs incurred for double-hulled tankers as independent research and development. The company believes it has meritorious defenses to these claims and is vigorously pursuing them.
U.S. ex rel. Rex Robinson, et al. vs. Northrop Grumman, Case No. 89C6111. This case was filed under seal in the U.S. District Court for the Northern District of Illinois on August 10, 1989. The complaint was unsealed on August 27, 1992, and the government did not intervene until October 2001. The complaint filed by former employees alleges that an operating unit of the Company in Rolling Meadows, Illinois, prior to 1989, committed fraud in the manner in which it accounted for scrap electronic parts for the B-1B, B-2, and F/A-18 programs. The complaint also alleges time mischarging by employees purportedly assigned to a "holding tank" who were given insufficient work to keep them busy full-time. The Company disputes these allegations and is defending this litigation.
U.S. ex rel. Daniel Jordan v. Northrop Grumman Corporation, Case No. C95-2985 ABC. In October 1999, the company was served with a fifth amended complaint that was filed by the Government in the U.S. District Court for the Central District of California in this action that was commenced in May 1995. The complaint alleges that the company violated the False Claims Act by knowingly supplying BQM-74C aerial target drones that contained various defective components between 1988 and 1998. The government seeks to recover up to $212,000,000 under theories of fraud, payment by mistake, unjust enrichment, breach of warranty and breach of contract and penalties up to $3,380,000. The company intends to vigorously defend this matter
United States ex rel. Bagley v. TRW, NO. CV 95-4153 AHM. This case has been settled. On June 9, 2003 Northrop Grumman announced that it had agreed to settle a suit filed by Richard Bagley, a former TRW Inc. employee, and the U.S. Department of Justice for $111 million. Bagley had claimed that TRW misclassified various costs and improperly charged those costs to certain of its federal contracts. Northrop Grumman

Exhibit 1-3. Legal Claims.

1.C References

Each proposal should provide reference information for three to five successful relevant projects completed by the proposer. References should include the following information: Project owner/sponsor; owner's project manager (contact info); project summary, budget and final cost.

Northrop Grumman has completed numerous similar projects for all types of clients. To help assure the Commonwealth that we can perform the work, we are providing 5 references of relevant successfully completed projects.

Reference Client: State of Texas; Austin, TX
Project Value: Approximately $500 million
Project Schedule Proposed & Actual: 10 years; 1997 – 2007 (implementation completed)
Contact Person, Telephone Number, and Email: Jimmy Jean, Contract Manager, Texas Department of Information Resources; (512) 936-2082; jimmy.jean@dir.state.tx.us.
Project Description: Northrop Grumman supports more than 30 Texas agencies, cities, counties and hospitals through the management and operation of multiple Texas data centers and the delivery of IT services such as planning, applications, networks, e-portal, and desktop support and disaster recovery. **Data Centers –** Northrop Grumman provides data center outsourcing services (except print operations)

Reference Client: State of Texas; Austin, TX

in support of 13 Texas state agencies including the Office of the Attorney General, Department of Criminal Justice, Department of Human Services, Department of Mental Health and Mental Retardation, and the Texas Education Agency at the State Data Center in San Angelo, TX which we manage and operate for the Texas Department of Information Resources. This data center currently supports the consolidation and outsourcing of IBM and Amdahl mainframes, Sun Microsystems environments, and a variety of other platforms.

Desktop/Server Support – Northrop Grumman is providing desktop/server support to 8 Texas state agencies (11,700+ seats) and the City of San Antonio. These services range from refresh of hardware, through desk-side support of both hardware and software, to network monitoring. The largest seat-based client, Protective and Regulatory Services (PRS) with 7,297 managed seats, is supplied with a full range of support including desktop refresh and support, LAN administration, network monitoring/administration, enterprise server administration/operation, and help desk.

Service Levels – Northrop Grumman provides services through specific service level agreements with each client agency. In all cases of desk-side support, elevated service levels for senior management are in place. It is recognized that there are certain decision makers and other staff who have a critical need for an operational level as high as possible. These designated "Gold Card" clients are provided a service level of 1 hour or less response time and return-to-service of 4 hours or less. Included in this group are Executive Directors, Commissioners and Deputy Commissioners as designated by the agency. For the City of San Antonio, this includes the office of the Mayor and department heads.

Client Satisfaction - Due to the positive performance and cost-savings that have resulted, the Texas Legislature passed legislation in the most recent session requiring all state agencies to consolidate all IT functions at the State Data Centers managed by Northrop Grumman. The contract has more than doubled in value since it began in 1997.

Reference Client: Joint Base Operations Support Contract, NASA Cape Canaveral Spaceport Management Office
Project Value: Approximately $2.2 Billion
Project Schedule Proposed & Actual: 10 years; 10/1/1998 to 9/30/2008
Contact Person, Telephone Number, and Email: James E. Hattaway, Director of Contracting (321) 867-7212

Project Description:

The J-BOSC contract was awarded to Space Gateway Support (SGS), a joint venture of Northrop Grumman, International Technology Corporation, and Wackenhut. Northrop Grumman is the managing partner of the joint venture. SGS provides Base Operations Support and Public Works to Kennedy Space Center (KSC), Cape Canaveral Air Station (CCAS) and Patrick AFB. The program employs more than 2,600 employees with a wide variety of technical skills.

SGS provides operations and maintenance, sustaining engineering (SE), configuration management, database administration, network administration and support, and user support for existing and/or new automated applications/systems supporting Kennedy Space Center (KSC) institutional and other base operation disciplines (such as KIMS and CMDS). Tasks include:

- Supporting planning and implementation of new/reengineered NASA wide and KSC systems/applications (such as IFMP);
- Providing client/server and database management capability and systems, plus functional and physical interface to external providers of mainframe, desktop, and communication services;
- Providing a semi-annual Information Technology Plan that identifies priorities and schedules for IT systems support and reengineering efforts; and
- Performing risk management, disaster recovery, and security for supported systems/applications.

Data Communications - SGS operates and maintains the administrative/institutional computer and data communication systems and their associated equipment and data communications circuits/cables, and provides end user computer/workstation support. We ensure the end-to-end integrity of all communications equipment, and provide resources required to support J-BOSC responsibility. Tasks include:

- Local area networking and administrative communications;
- Provide network management, planning and requirements coordination, operation and maintenance, SE, and upgrade of the Kennedy Data Network;
- Interface with the KSC cable plant, backbone, and other communication systems and providers;
- Provide risk management, disaster recovery, and security for supported communication systems;
- Implement and maintain KSC's administrative institutional computer and data communications systems, and provide interfaces to other contractor computer systems at KSC;
- Fully support KSC's computer and data communications users by providing problem resolution, consultation services, advice, and assistance;
- Seek opportunities to extend the productive life of KSC's administrative computer and communications resources and to provide the technical staff and users with improved FIP working environments; investigating and implementing proven new products, new technologies, and/or innovative processes that offer opportunities for productivity improvement, reduced operational cost, and/or extended technological life for existing IT resources; and

Software Engineering - SGS conducts essential software engineering for custom applications software. Software engineering activities include analysis, design, development, testing, implementation, and maintenance. Maintenance includes error correction, functional enhancement, and conversion. SGS

Reference Client: Joint Base Operations Support Contract, NASA Cape Canaveral Spaceport Management Office

Functional Area Configuration Control Boards (CCBs) establish priorities.

Computer Operations and Maintenance - SGS conducts day-to-day computer operations and maintenance for multi-user hardware systems to support processing of varying on-line and batch applications and schedules, and provides weekly update data to a NASA-operated Disaster Recovery Library that holds copies of system and backup tapes outside the data processing facility.

Magnetic Media – SGS administers the magnetic tape back-up library for more than 265 applications that reside on more than 120 file servers, using 13 operating systems (e.g., Compaq/IBM/HP/SUN/DEC). We perform nightly incremental back-ups and complete back-ups during the weekend, or off-peak usage (magnetic tape storage). We also provide asset life-cycle support for incoming and outgoing magnetic media.

IT Help Desk - SGS operates an IT Help Desk for desktop and personal computers and for other systems maintained by SGS. This desktop/personal computer support includes the installation, configuration, integration, troubleshooting, and repair of hardware units, software products, and hardware components. We assist in transition planning to state-of-the-art office automation tools, and provide training, network support, and hardware and software support.

Data and Systems Administration - SGS conducts data and system administration, analysis, tuning, and systems programming activities in support of the Administrative Computer System, KIMS, KDN, LANs, and J-BOSC-assigned Server Systems (microcomputers).

Configuration Control - SGS evaluates, integrates, and maintains site-specific configuration; SGS coordinates with vendor- and Government-lead centers, provides troubleshooting for user community and database upgrades, and administers commercial software licensing and maintenance contracts.

IT Resources Management - SGS is a major participant in KSC's implementation of the NASA Automated Information Security Program. The scope of this program includes all automated information resources owned by KSC and operated by SGS as well as other automated information resources that are operated or controlled by SGS if they are used to store, process, or transmit sensitive NASA information. For each system that is within scope and is identified by the Government, SGS performs the following tasks:

- Computer security
- Provide sensitive applications user training in both general and application-specific security requirements;
- Perform studies as requested to determine the most cost-effective techniques to achieve economies of computer and data communications resource utilization.
- Shift Coverage – 7x24

Reference Client: U.S. Centers for Disease Control and Prevention (CDC); Atlanta, GA
Initial and Final Project Cost: $243 Million
Project Schedule Proposed & Actual: 6 years; 1996-2002
Contact Person, Telephone Number, and Email: Annie Burt, Co-Project Officer; (404) 639-7611; agb2@cdc.gov

Project Description:

Northrop Grumman, since 1996, has developed and supported information systems that aid CDC public health research, surveillance and intervention efforts and serves its centers, institutes and offices (CIOs) nationwide. Northrop Grumman provides technical, functional and business expertise to each of CDC's 16 CIOs and is responsible for systems analysis, scientific data management, systems development, and the integration of various software applications. This is a large and complex program that includes operations and management of on-site data centers. The types of systems supported range from financial applications to mission critical scientific/technical applications. All phases of the system development lifecycle are supported.

Systems Development—Northrop Grumman works with CDC in the planning, development, operation and support of more than 120 information systems. Examples include: the System for Analysis of Intramural and Extramural Funding, a business support system that tracks internal funding and external (grant) funding; the Diabetes Management Information System, a public health mission-decision support tool to track and evaluate the methods, characteristics, and effectiveness of Diabetes Control Programs and other discretionary projects; and enterprise-wide applications such as ASTRO, a CDC-wide specimen tracking and retrieval system.

Systems Integration—Northrop Grumman has supported CDC integrate legacy systems to increase interoperability of systems and facilitate data sharing. Examples include: development of the TB Information Management System, a client-server application that integrated the previous Clipper applications; and the National Electronic Disease Surveillance System (NEDSS) and Public Health Information Network (PHIN) that will integrate the collection, analysis, and dissemination of Public Health data nationwide.

Infrastructure Support—Northrop Grumman provides infrastructure support for data centers, servers, networks, workstations and an information security program. Examples include: network engineering and analysis for departmental LANs; database administration for various applications throughout the CIOs; maintenance and enhancement of the secure data network for transmission of sensitive information between CDC and state and local Public Health departments; operation of the agency's mainframe data center; implementation and administration of the Silverstream application server; desktop management support for NIP; and the secure access pilot to enable the surveillance field staff to remotely access a central database for existing patient data.

Client Satisfaction—The overall quality of Northrop Grumman's workforce and products provided in support of the public health mission are evaluated annually and are consistently rated highly (95+) by CDC. Northrop Grumman routinely receives commendations from CDC for the dedication of our workforce to the public health mission, our integrity and professionalism dealing with CDC public health partners, and the high quality of our IT products and services.

Reference Client: Veteran's Benefits Administration Stage I Modernization Program
Initial and Final Project Cost: $300 Million
Project Schedule Proposed & Actual: 8 years
Contact Person, Telephone Number, and Email: Michael Smith; 202-273-8767
Project Description: Northrop Grumman IT deploys and supports a state-of-the-art computing infrastructure to provide benefits and services to millions of veterans. We provide complete acquisition, configuration, integration, deployment, network management, technical support, maintenance, training, and technology refreshment of a high-performance multiprocessor network in an open systems environment. This fault-resistant, high-availability system spans 60 geographically dispersed sites over an X.25 nationwide network. The system uses a client/server architecture, a transaction-processing monitor, distributed databases, and remote operations capability. Northrop Grumman IT is upgrading a nationwide IT infrastructure by delivering state-of-the-art hardware and software from multiple vendors and is providing cradle-to-grave support to the deployed infrastructure to ensure the functionality and interoperability of all components. This effort provides vital benefits and services to a widely diversified group of clients and administrators. This project must provide these services on a near real-time basis to clients who are critically dependant on this system for these benefits. In addition, the clients and administrators served by this system are spread over a large area and are tied together via an extensive network.

Reference Client: Data Center Support For The Executive Office Of The President (EOP)
Project Value: $50 Million
Project Schedule Proposed & Actual: 5 years; 1997-2002
Contact Person, Telephone Number, and Email: Robert Helms, 202-395-7667, Robert_D_Helms@oa.eop.gov

Project Description:

Northrop Grumman has provided information technology services for the Executive Office of the President since October 1997. The scope of Northrop Grumman's services includes providing essential infrastructure support through the Information Systems and Technology (IS&T) Directorate of the EOP. Northrop Grumman technical experts provide critical data center operations; help desk and network operations support; network management for the multi-building EOP local area network; external network interface support; firewall and network security implementation; web site support for Whitehouse.gov; and software support for infrastructure utilities and miscellaneous reporting requirements.

Network Support. The EOP IT network operated and maintained by Northrop Grumman consisted of a multi-building Local Area Network with multiple external interfaces. The network included security firewalls to prevent penetration from external internet traffic.

Data Center Operations. Northrop Grumman operated the EOP data center on a 24 hour-per-day, 7 days-per-week, 365 days-per-year schedule. The products produced by the Northrop Grumman engineering staff, throughout the data center, were time-sensitive and in some cases, delivery dates were mandated by Law. Our staff of experts maintained current documentation, and delivery schedules of specific data requirements. Sensitivity requirements of deliverables were all handled with strict adherence to procedures within the operations center. Northrop Grumman project managers conducted regularly schedule interchanges with the IS&T Directorate management. This dialogue assured that data center personnel and customers maintain awareness of critical dates, and, events that are occurring throughout the infrastructure that could impact the operations and/or schedule.

Help Desk. Northrop Grumman provided the primary support for the desktop environment for over 2000 workstations at the EOP. Essential support included providing desktop assistance for standard operating systems and office support tools, and for utilities that aid the operation and infrastructure support of the EOP. As issues arose, Northrop Grumman engineers were assigned to analyze the issue and make recommendations for improvement. We continually reviewed processes, metrics from the call center, service delivery from the data center and network availability and made adjustments to improve our delivered service. We instituted key desktop management processes that allowed the network operations and help desk to immediately resolve 89% of all problems at the help desk. Previously, the majority of the reported problems had resulted in escalation to technical support for call back or visit to the desk-side for resolution.

Contract Performance. When Northrop Grumman was awarded the contract in October 1997, the government indicated that a 6-month transition period was going to be required. This was due partially to the length of time (15 years) that the incumbent had provided support and also because the production of the budget would fall within the transition time period.

Following our transition plan, Northrop Grumman successfully hired 95% of the projected 100-person staff, obtained the proper clearances for the personnel, continually kept EOP advised of our transition progress, and fully transitioned the support to Northrop Grumman within 90 days. Our team supported the OMB budget process successfully without the incumbent contractor on-site. Northrop Grumman transitioned the Help Desk and Network Operation Support Center (NOC) to be a part of Northrop Grumman's support requirement. Northrop Grumman developed the NOC, procured the hardware, and created procedures for its day-to-day operation.

For each firm or major subcontractor ($1 million or more) that will be utilized in the project, provide a statement listing all of the firm's prior projects and clients for the past 3 years and contact information for same (names/addresses /telephone numbers). If a firm has worked on more than ten (10) projects during this period, it may limit its prior project list to ten (10), but shall first include all projects similar in scope and size to the proposed project and, second, it shall include as many of its most recent projects as possible.

Project	Customer	Time Frame	Comments	Contract Value	Contact Name	Phone Number
West Texas Disaster Recovery Operations Center (WTDROC)	State of Texas	1997–2007	Perform remote data center network operations for 30 Texas State Agencies.	$70M/year	Jimmy Jean, POC	(512) 936-2082
Alabama Location, Enforcement, and Collection System (ALECS)	State of Alabama Dept of Human Resources	1994–2006	Monitor all communications between Albuquerque Data Center and State network location.	$19M	Al Austin, POC	(334) 242-3244
Vought Aircraft Industries, Inc.	Vought Aircraft	2000-2003	Provide full range of data center outsourcing services. Help Desk, Desktop, Server Network Support. 6000 users.	$115M	Bryan Tutor, Director IT	(972) 946-5771
U.S. Centers for Disease Control (CDC)	U.S. CDC	2002-2009	Large complex program that includes operation and management of several on-site data centers.	$511M	Annie Burt, POC	(404) 498-3214
Northrop Grumman Corporation, Inc., Information Technology Services Agreement	Northrop Grumman Corporation	2001 - present	NOC, IT Security, and Desktop/Server Management. Develop, deploy, and manage distributed corporate computing infrastructure from centralized network operations center in Dallas, Texas. Help Desk and Hardware Maintenance, Infrastructure Deployment and Asset Management, Infrastructure Cable, IT Training. 100,000 users.	$770M	Raphael Holder, VP Shared Services Operations	(972) 946-9550

Project	Customer	Time Frame	Comments	Contract Value	Contact Name	Phone Number
Management Information Systems Technical Support (MIST II)	U.S. Air Force Material Command	1996 - present	Help Desk, Network Operations Center, Hardware Maintenance, Desktop/Server Management, Asset Management, and Infrastructure Deployment. Ten sites connected by LAN/WAN 20,000+ users	$250M	Linda Sasser POC	(781) 377-7027
INS Technology Enterprise Automation Management Support (TEAMS)	Department of Homeland Security Immigration and Naturalization Service	2002 - present	Help Desk, Network Operations, Asset Management, IMACS, Desktop Support, Server/Desktop Management Training, IT Security. 45,000 users	$150M	John Munster, POC	(703) 531-6554
Austin Automation Center Enterprise System	US Department of Veterans Affairs	2001 - 2011	Data Center Operations, Help Desk, Program Management Office, Disaster Recovery, System Security	$685M	Gail Cotton, POC	(512) 321-6018
Texas Department of Protective and Regulatory Services Outsource Contract	State of Texas	2001 - 2006	Help Desk, Network Operations, Hardware Maintenance, Desktop/ Server Management, Asset Management, Training Security. 249 sites connected by LAN/WAN. 7,500 users.	$71.4M	Shirley Marie Scott, Operations Manager	(512) 834-4427
Peace Corps Seat Management	Peace Corps	1999 - present	Seat Management, Hardware and Software Services, Infrastructure Management, Help Desk, Maintenance, Asset Management, Training. Services performed in 12 locations. 1,200+ users.	$19M	Denise Wofford, POC	(202) 692-1337

1.D Point Of Contact

Provide the names, addresses, and telephone numbers of persons within the firm or consortium of firms who may be contacted for further information.

The following are Northrop Grumman's primary contacts for further information.

Technical:

Mr. Michael D. King
2411 Dulles Corner Park, Suite 400
Herndon, VA 20171
(703) 713-4371
md.king@ngc.com

Contractual:

Mr. Benny R. Wetzler
2411 Dulles Corner Park, Suite 400
Herndon, VA 20171
(703) 713-4373
benny.wetzler@ngc.com

1.E Financial Statements

Provide a current or most recently audited financial statement of the firm or firms and each partner with an equity interest of twenty percent or greater.

Appendix A contains the most recent Annual Report for Northrop Grumman, which includes an audited financial statement.

1.F Conflicts of Interest

Identify any persons known to the proposer who would be obligated to disqualify themselves from participation in any transaction arising from or in connection to the project pursuant to The Virginia State and Local Government Conflict of Interest Act, Chapter 31 (§ 2.2-3100 et seq.) of Title 2.2.

We have reviewed the Virginia State and Local Government Conflict of Interest Act, Chapter 31 of Title 2.2 and confirm that none of the individuals on our team would be obligated to disqualify him or herself from participation in this project.

1.G Staffing

Identify proposed plan for obtaining sufficient numbers of qualified workers in all trades or crafts required for the project.

This proposal leverages the current employees of the Commonwealth, augmented with staff drawn from Northrop Grumman's 32,000 Virginia-based and 120,000 total employees for obtaining sufficient numbers of qualified workers.

1.H Training

Provide information on any training programs, including but not limited to apprenticeship programs registered with the U.S. Department of Labor or a State Apprenticeship Council, in place for employees of the firm and employees of any member of a consortium of firms.

Northrop Grumman's Organization and Workforce Development (OW&D) unit has been established to ensure sustained market leadership in the IT market place by providing leading edge workforce development solutions to Northrop Grumman employees worldwide. Career development is highlighted as an important element helping employees define their future and contribute to their organization's success. The mission of OW&D is to ensure employees gain the knowledge and skills needed in business functional areas for effective job performance and career growth.

O&WD's resources have been designed so all employees have access to tools that help increase capabilities in their chosen career. Employees are encouraged to take an active role in defining the chosen knowledge and skills needed for their professional development.

Northrop Grumman provides training to its employees as a routine part of their professional development, through in-house training programs, industry conferences and seminars, a tuition reimbursement program, Computer-Based Training (CBT), OEM-sponsored training and other commercially offered courses.

All of our functional units have a dedicated training coordinator who is mandated with ensuring that the knowledge requirements of all stakeholders are addressed and the team is positioned for delivery success. This program is designed to identify and deliver technical training, tailored to project specific requirements.

Our core belief is that Delivery Success = Technical Knowledge + Business Intelligence. Additional information concerning technical training is included in Section 2.

1.I Minority Business Enterprises

Provide information on the level of commitment by the firm or consortium of firms to use Department of Minority Business Enterprise firms in developing and implementing the project.

Diversity is a way of doing business at Northrop Grumman. We realize that teaming with minority, women-owned, and all small business enterprises to maximize subcontracting opportunities will help us maintain our position as a global supplier of high-technology products and services to the aerospace and information systems markets. We believe that minority, women-owned, and all small business enterprises are an integral part of our industry and important contributors to our future as a global company.

Northrop Grumman is committed to using Department of Minority Business Enterprise firms and Virginia's small, minority and women-owned (SWAM) businesses in developing and implementing projects. We have a tradition of meeting and, whenever possible, exceeding stated small business subcontracting goals while providing quality support to our customers. We continue to work assiduously to increase subcontracting opportunities for minority businesses. Policies and procedures have been developed that formalize our practices.

We will continue to aggressively seek full involvement of minority, women-owned, and small business enterprises in what we do because it makes good business sense, it enhances our competitive edge, and helps us perform.

We have developed a climate for SWAM subcontracting within Northrop Grumman, with a focused commitment to these certified suppliers. Northrop Grumman operates a Socio-Economic Business Programs Office, and all sectors of Northrop Grumman staff Small Business Liaison Offices to provide dedicated assistance to SWAM firms interested in contracting with Northrop Grumman.

Every opportunity will be made to promote SWAM businesses and expand the participation of minority enterprise firms in this contract.

1.J Qualifications

For each firm or major subcontractor that will perform construction and/or design activities, provide the following information:

1. **A sworn certification by an authorized representative of the firm attesting to the fact that the firm is not currently debarred or suspended by any federal, state, or local government entity.**
2. **A completed qualification statement on a form developed by the Commonwealth that reviews all relevant information regarding technical qualifications and capabilities, firm resources and business integrity of the firm, including but not limited to, bonding capacities, insurance coverage and firm equipment.**

Northrop Grumman proposes to work with the Virginia Bio-Technology Research Park Authority (VBTRP) to implement a new consolidated operations center in downtown Richmond. Any construction services to develop the new Center would be managed by the VBTRP. Northrop Grumman does not intend to subcontract directly with a construction firm to support this proposal. Northrop Grumman will provide the required documentation and qualification statements of construction firms when appropriate and if requested by VITA or the Commonwealth.

1.K Worker Safety Programs

Describe worker safety training programs, job-site safety programs, accident prevention programs, written safety and health plans, including incident investigation and reporting procedures.

Northrop Grumman maintains a high level of safety and health protection on the job. This is due to our progressive safety and health programs and to each employee's efforts. Many employees actively participate on various safety committees and volunteer emergency crews. Each facility provides professional monitoring and guidance concerning safety and health aspects of company activities.

Employees are expected to comply with applicable laws, regulations, policies, and procedures governing occupational health and safety practices. Company policies and procedures are published for most company elements, which implement practices to assure compliance with these legal requirements.

Northrop Grumman provides an Employee Environmental, Health and Safety Guide and other Safety and Health information for employee's awareness on the Northrop Grumman Information Technology Website.

2.0 Project Characteristics

2.A Scope of Proposed Project

Provide a description of the project, including the conceptual design. Describe the proposed project in sufficient detail so that type and intent of the project, the location, and the communities that may be affected are clearly identified. Proposal should include sufficient data, analysis and information sufficient to satisfy VITA that the project would serve a public purpose as required by the VPPA.

Introduction

The illustrative solution put forth in this section follows many of the recommendations made in the 1998 Joint Legislative Audit and Review Commission (JLARC) *Review of Information Technology in Virginia State Government* Gartner report, the 2002-2006 *Commonwealth of Virginia Strategic Plan for Technology*, the *VITA Operating Plan*, and the April 7 *DRAFT VITA Business Plan* currently being implemented by the Commonwealth with the establishment of VITA and other planned IT enhancements. This illustrative technical solution will continue the progress made to-date by the Commonwealth, while also provide comprehensive solutions for the delivery of innovative technology and infrastructure projects that deliver measurable business value and service to the citizens of Virginia and customers of Virginia government. The presented solutions are comprehensive, and address the majority of Commonwealth planned reengineering initiatives currently under consideration.

One example of Northrop Grumman's capability to enhance the Commonwealth's IT services and guarantee improvements, is the Gartner NOW Index as described in the JLARC report. When Northrop Grumman partnered with the State of Texas to manage the State Consolidated Data Center in 1999, their NOW Index, as measured by Gartner, was 1.62. By 2001, only one complete calendar year later, the Index was .61, and in the top 10% of the Gartner-rated data centers. In the next planned Index review, this measurement by Gartner will be improved again.

The Commonwealth of Virginia's leaders are embarking on a technology program aimed at transforming IT services across the Commonwealth. This transformation has been hailed by many as one of the most aggressive reforms of IT across the nation. The Commonwealth will face many issues and challenges over the next three years.

One fundamental issue facing the Commonwealth is the effective transition from decentralized IT service environment to one that supports the effective use of the VITA. VITA consolidated the resources and responsibilities of three significant Commonwealth IT agencies:

- Virginia Department of Technology Planning (DTP)
- Virginia Department of Information Technology (DIT)
- Virginia Information Providers Network Authority (VIPNet)

VITA became operational on July 1, 2003 under the supervision of the Secretary of Technology, a new independent Chief Information Officer and Information Technology Investment Board. VITA's primary responsibilities include:

- Operation of the IT Infrastructure, including all related personnel, for the declared "in scope" executive branch agencies

- Governance of IT investments, in support of the responsibilities and duties of the Commonwealth CIO and Information Technology Investment Board
- Procurement of technology for VITA and on behalf of other Commonwealth agencies and higher-education institutions
- Operating and managing statewide enterprise applications, such as budgeting, accounting, payroll, and personnel systems

The primary objectives of VITA are to achieve significant fiscal benefits from consolidating technology resources and providing centralized services, position Virginia in the global economic marketplace, and revolutionize service delivery to the citizens of Virginia. Consolidating technology can help move the Commonwealth toward developing baseline technology standards and utilize enterprise-oriented, centralized applications, resulting in seamless service and improved efficiency.

VITA faces significant challenges. It will support 90 executive branch agencies, spanning all Commonwealth Secretariats. To be successful, VITA must:

- ☑ Exceed service expectations
- ☑ Achieve operational excellence
- ☑ Assure business continuity and continued operations
- ☑ Involve the current Commonwealth IT professionals to allow for a smooth transition
- ☑ Provide for stakeholder driven solutions
- ☑ Avoid past mistakes, and recognize, react and correct new mistakes to speed recovery

Proposed Solution Summary

As will be detailed further in this section, Northrop Grumman's long-term solution includes the following initiatives.

- ☑ Exceed the planned goals as outlined in VITA Strategic, Operating, and Business Plans
- ☑ Reduce total IT cost and Improve Agency Service
- ☑ Consolidate the Data Center in Richmond
- ☑ Consolidate Disaster Recovery and Test Center in Newport News or alternate locations in Southside Virginia
- ☑ Execute a complete enterprise desktop management and support services program
- ☑ Consolidate the Customer Care and Support Operations in Southwest Virginia
- ☑ Implement a Total Asset Management & Control System
- ☑ Implementation of a Network Operations Center and management of comprehensive network and enterprise communications services
- ☑ Creation of emerging technology evaluation and structured implementation process
- ☑ Establishing an organizational management and operational program that supports the integrated execution of Commonwealth-defined Transformation Projects and Activities

Northrop Grumman's long-term solution over the phased 10-year process provides the Commonwealth a new consolidated, secure data center in Richmond at the Virginia Bio-Technology Research Park with a disaster recovery/test facility in the Virginia Advanced Shipbuilding and Carrier Integration Center (VASCIC) at Newport News, or in an economically-depressed region of Southside Virginia, such as the Danville region. Network operations would be implemented in the Richmond location, or possibly co-located at another Northrop Grumman location, such as the emerging Department of Homeland Security's Network Operations Center in Northern Virginia. The call center would be located in Southwestern Virginia, in the Southwest Virginia Promise region, and bring in new jobs while providing training, a work-study program and new tax based revenues to this area. All Virginia's Agencies and Customers would use the new call center. Each caller would be provided best-in-class service, regardless of size or importance. In addition, the new call center would include desktop services (break/fix, move/add/change, help desk) and would provide a single point of contact (SPOC) for all service needs of the Commonwealth. Performance tracking, monitoring and metrics reporting will be provided to the Commonwealth to ensure the data center and call center management services exceeded agreed to levels.

Northrop Grumman's intention is to implement this program through a Public Private Partnership between VITA and Northrop Grumman. Based on the current data available, Northrop Grumman believes the program can be successfully achieved with a 25% reduction of the current IT budget amounts. Depending on the scope of the managed partnership established between Northrop Grumman and the Commonwealth, this could amount to $1 Billion in savings to the Commonwealth over a 10-year period once the full program is completed. Additional savings in excess of $100 Million in facilities reduction could be realized plus the benefits accrued through improved Data Center and Call Center Management services. Economically depressed, rural regions of Virginia would receive increased tax revenues through the creation of new jobs. Before the Commonwealth would make any commitment, Northrop Grumman with the cooperation of the Commonwealth Agencies and Administration, will complete a due diligence process to verify our assumptions on cost and savings. We would then be in a position to provide guarantees of costs, savings and service levels.

Based on our communications with Commonwealth personnel and formal documentation published by VITA and the ITIB, it is expected that VITA and VITA-supported agencies would complete a re-engineering process to streamline operations. Northrop Grumman has been a driving force in implementing sophisticated enterprise systems and applications to support the transformation of modern military, government, and business organizations, propelling them to unprecedented levels of performance, productivity, and customer care. For these instances, Northrop Grumman follows proven processes to meet stated requirements. In fact, we are one of only 21 companies in the world that has had a business unit independently evaluated at the Software Engineering Institute's Capability Maturity Model Integration (CMMI) Level 5 - our industry's highest rating for systems and software engineering. Northrop Grumman can support these process transformations through innovative financing mechanisms or through traditional methods.

Agencies may decide to partner with Northrop Grumman or other trusted technology Commonwealth partners, such as Accenture, AMS, Bearing Point, EDS, CACI, IBM, Unisys, or others. These transformation partnerships have a proven track record in the Commonwealth, as can be recognized through the Partnership Project between the Virginia Department of Tax, American Management Systems, and Northrop Grumman. While Northrop Grumman is not part of the public-private aspects of the Partnership Project, we do play a vital role in assuring success of the program. Northrop Grumman provides independent oversight for AMS' activities, and reports findings to the Auditor of Public Accounts. Northrop Grumman is the recognized industry leader of independent program oversight functions. We believe Northrop Grumman is uniquely qualified to build an independent oversight/quality assurance

program for VITA's support of agency transformation projects that leverage other trusted technology partners.

Ultimately, our solution intends to assist VITA and its agencies achieve an enterprise network and systems infrastructure of tomorrow, as depicted in **Exhibit 2-1**. This future concept, as implemented through our solution, will allow the Commonwealth to achieve its goals of more efficient, cost effective best-in-class services in support of its citizenry.

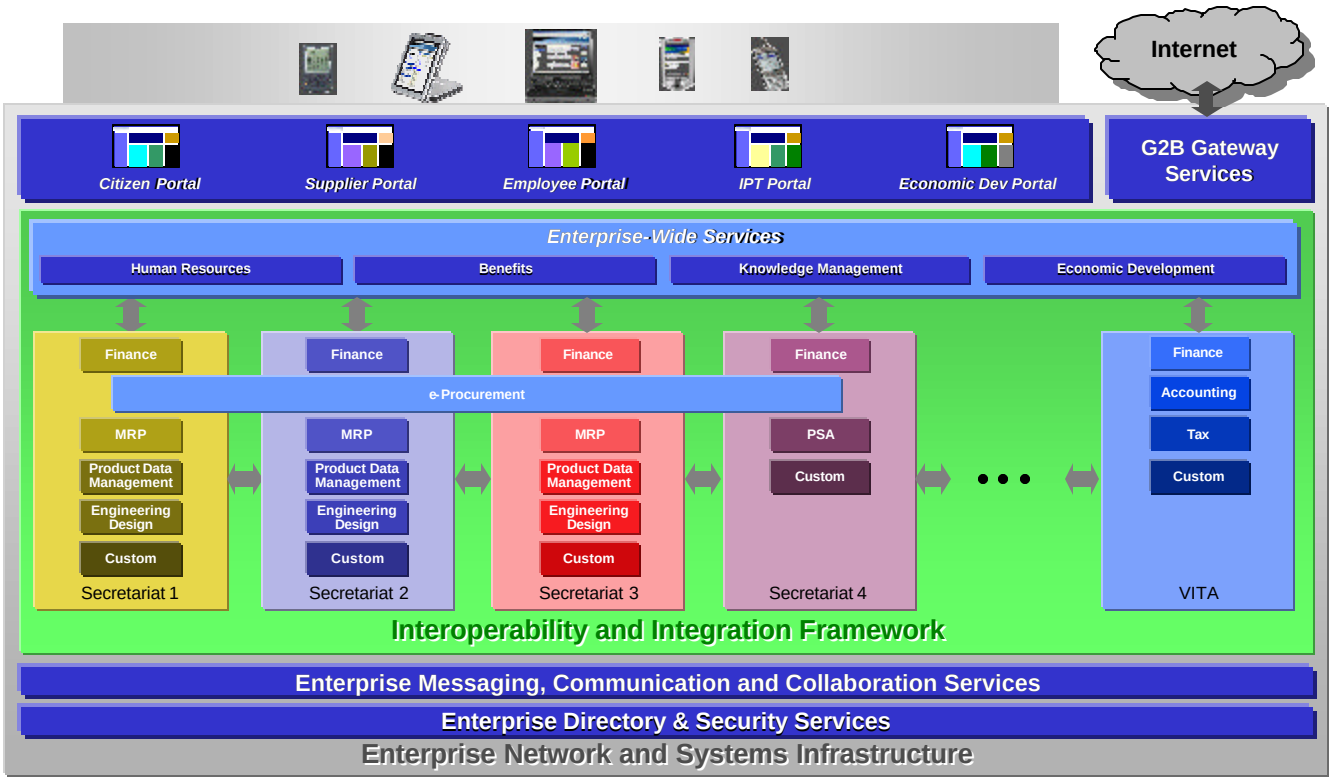

Exhibit 2-1. Future Enterprise Network and Systems Infrastructure Concept.

The following sections provide the Commonwealth an overview of Northrop Grumman's technical approach to achieving the benefits of the proposed public-private partnership.

2.A.1 Managed Services Program Description

A successful Managed Services Program allows a customer struggling with managing an internal IT organization to experience a multitude of benefits. A brief outline of the rewards is:

- Improved productivity
- Increased citizen service
- Cash Flow predictability
- Established Service Level Agreements (SLAs)
- Availability of additional resources with diverse skill sets
- Organized Asset Management
- Ability to focus on core business requirements

- Reduced risk
- Leveraged Business experiences
- End-to-end IT Life Cycle
- Operational Excellence

Northrop Grumman provides government agencies the full benefits of partnering with a proven industry leader that specializes in government IT transformation programs. We provide broad management and technical capabilities across all aspects of the IT business world. Most importantly, we understand how to leverage these business world best practices to effectively support the mission of government.

Our approach includes a program management methodology that leverages the benefits of strategically deploying and maintaining distributed and central IT environments with a limited necessary set of variations based on agency support requirements. The use of common tools and services is implemented when reasonable to improve systems availability, reduce user downtime and control ever-growing IT expenditures.

In government IT, including the Commonwealth's, desktop/laptop and data center environments are extremely complex, having matured over many years, deploying numerous vendor equipment, supporting several operating systems and a host of user applications. A core capability of Northrop Grumman is the ability to monitor and manage large, diverse technical infrastructures. One part of the solution includes the implementation of end-to-end asset management. Another leverages industry standard IT management tools, including HP Openview, IBM Tivoli, and CA Unicenter. Full utilization of these processes and tools are needed for complex organizations like the Commonwealth to centralize key support resources, improve systems availability and reduce IT expenditures.

Key to a successful solution is a centralized, well-trained and competent customer support program and help desk services. Northrop Grumman is a leader in centralized support center operations, with skills covering a broad array and capability of supporting most industry standard business application, including the Microsoft suite of software, SAP, PeopleSoft, Lawson and many others.

Customers experience a measurable increase in user satisfaction and overall IT performance as a result of partnering with Northrop Grumman. We guarantee performance through mutually agreed upon Service Levels. These Service Levels are developed using existing baseline information with the expectation that improvements in key areas will be recognized within a specified period of time. Based on our understanding of the Commonwealth's current environment, we are showing some illustrative Service Levels in **Exhibit 2-2.**

Statement of Work Area	Service Level Examples
Mainframe	(7 days Wk X 24 Hrs)
Availability	99.9%
Mid Range/Server	(7 days Wk X 24 Hrs)
Availability	99.5%
Mean time to respond	2 Hrs
Mean time to resolve	4 Hrs

Statement of Work Area	Service Level Examples
Network	(5 days Wk X 12 Hrs day)
LAN availability	99.7%
Mean time to respond	2 Hrs
Mean time to resolve	4 Hrs
Desktop	(5 days Wk X 12 Hrs day)
Mean time to respond	4 Hrs
Mean time to resolve	8 Hrs
installs, moves, adds, and changes	5 days
Call Center	(7 days X 24 Hrs X 365)
First Call Resolution	70%
Average Speed to Answer	60 seconds
Abandon Rate	Less than or equal to 10%

Exhibit 2-2. Illustrative Service Levels.

The concept of the partnership between VITA and Northrop Grumman is to reduce cost and improve efficiencies in a climate where the management of IT continues to challenge the most experienced business executives.

2.A.2 Partnership Implementation Plan

Northrop Grumman's approach to seamlessly implement this partnership to accelerate the transformation of the Commonwealth's IT functions is presented in the following pages. By employing effective recruiting and due diligence strategies, we will ensure continuity of services and minimize disruption to the Commonwealth's users and customers while transitioning operations to a performance-based solution. Our incremental, measured approach combines phase-in of centralized services with proven change management practices to ensure acceptance of our new services and to provide the Commonwealth with clear indicators of success.

Northrop Grumman has developed a comprehensive implementation process based on our own internal consolidation of IT functions and our State and Local Government experience to ensure that all the Commonwealth's processes are in place successfully. We recognize that any interruption or degradation of service during the creation of this partnership would severely impact the Commonwealth's ability to carry out its mission. Our highest priority will be to sustain current operations by assimilating high performing, existing IT staff and support processes into this public-private partnership. As a result of Northrop Grumman's many corporate acquisitions over the past nine years, we have gained extensive experience with IT transitions. During this period, Northrop Grumman relocated the State of Texas data

center and over 25 other facilities comparable to the Commonwealth's IT environment, without adverse impact to the clients' missions.

Northrop Grumman understands the challenges that the diversity of the Commonwealth's environment poses:

- The IT support operation is geographically dispersed at Commonwealth offices throughout Virginia.
- The Commonwealth's various offices perform diverse functions and have different user communities and support requirements, depending on the facet of the mission they perform.
- The Commonwealth's technical environment changes greatly from office to office. There are not only differing hardware platforms and operating systems, but also a variety of specific applications in use at these different locations.

Northrop Grumman recognizes that there is no single approach that can address all functions within this diverse environment. In essence, there is not one transition to be accomplished but rather a series of interrelated transitions—each with its own unique concerns. Northrop Grumman's experience on more than 130 IT support contract transitions equips us with the best of class solutions to effectively address each phase of this process.

We have experience with programs comparable to the Commonwealth's and with similar challenges at each site, as shown in **Exhibit 2-3**.

We have performed accelerated, nationwide transitions involving hundreds of staff, such as the US Postal Service's ITSS contract in which we transitioned 252 people in 48 locations in just 30 days. Northrop Grumman also has successfully transitioned operations, such as the US Air Force's MISTS II program in which we transitioned 484 people at four regional bases in 25 days. We have experience in transitioning large sites (JBOSC—1,350 people in 21 days) and smaller sites (Navy SDS—36 people in 3 days) on compressed schedules. Northrop Grumman has achieved incumbent retention rates ranging from 90% to 100% on these efforts.

As part of the requested cooperative discussions, Northrop Grumman would apply the best practices gained from our experience to develop a measured, integrated approach to transition services. The approach would be included in our detailed proposal.

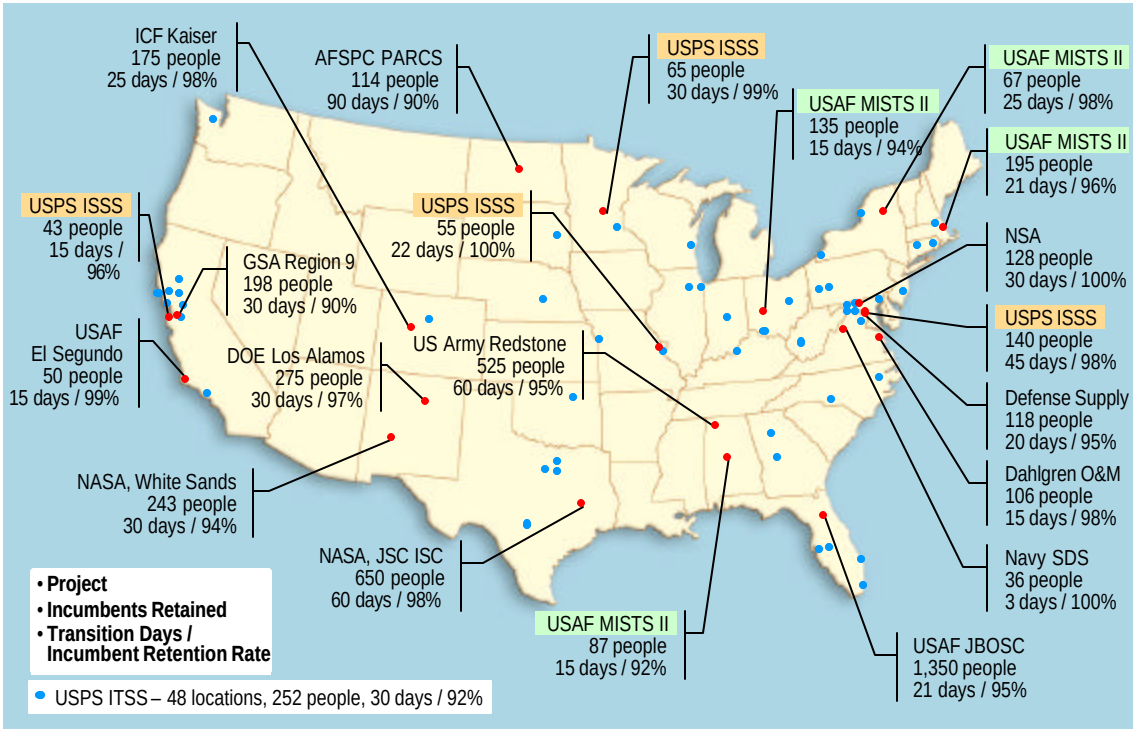

Exhibit 2-3. Northrop Grumman Implementation Experience. *Our proven approach to transition, adapted for Virginia, will ensure that there is no disruption to the Commonwealth's mission.*

2.A.2.1 Implementation Team Structure. One of the best practices approach to be detailed is the creation of a dedicated team to manage transition activities. The team is responsible for developing the facilities, business systems, and staff to execute each functional requirement, allowing the program management office to keep focus on accomplishing the technical aspects of IT fulfillment. Using this approach, the same personnel do not have to simultaneously juggle high priority transition work and high priority project planning and execution. During the initial phase, Northrop Grumman will partner with the Commonwealth to establish integrated transition teams, each of which will focus on both the strategic and management level issues and the detailed technical requirements for a particular service area.

Exhibit 2-4 provides an illustrative example of the transition team structure. The actual structure of this organization would be developed in partnership with the Commonwealth.

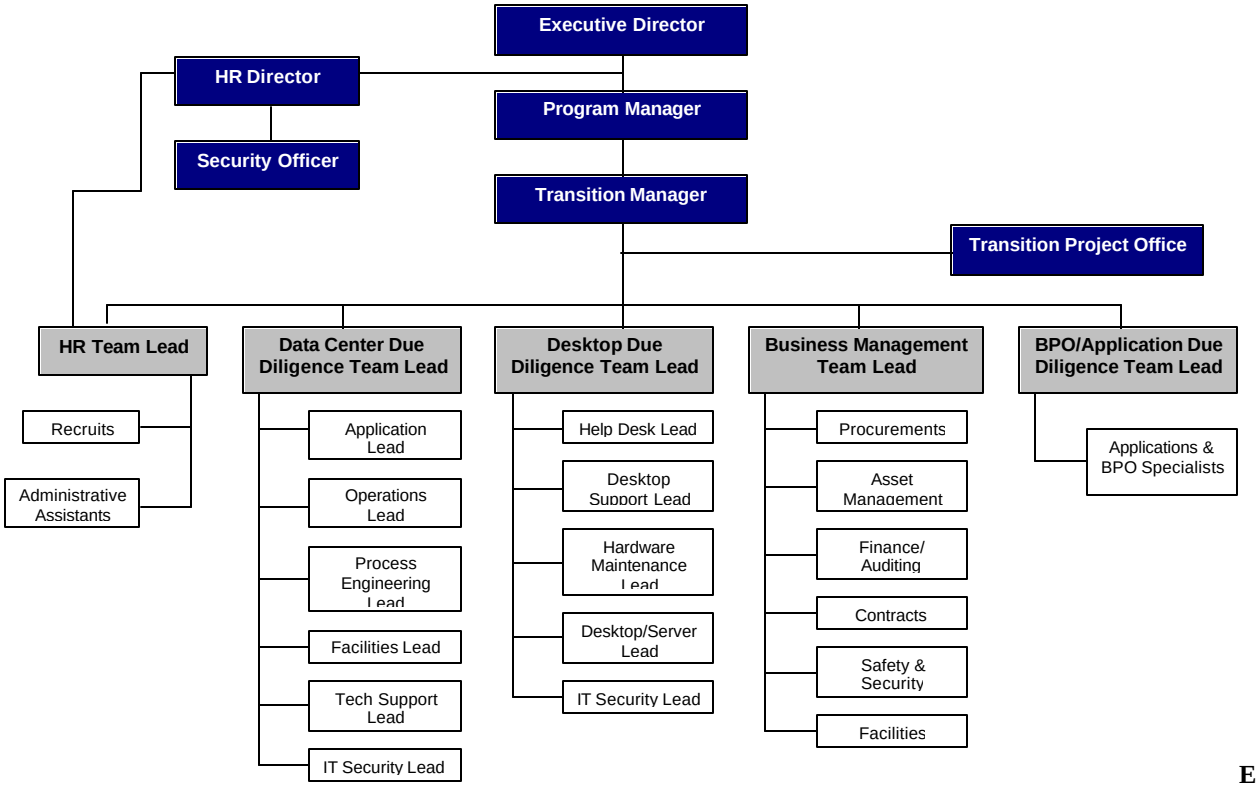

Exhibit 2-4. Transition Team Organization. *This is an illustrative organizational structure of a dedicated team to on transitioning operations to the proposed public-private partnership.*

2.A.2.2 Staffing of the Public-Private Partnership. Northrop Grumman proposes to work with the Commonwealth to develop specific staffing guidelines to support this program. The domain knowledge possessed by the current staff will be extremely valuable as Northrop Grumman designs service delivery improvements. **Exhibit 2-5** presents illustrative program staffing guidelines.

Guidelines	Description
Right of First Refusal	We will give individuals the right of first refusal for the positions that they currently hold to the maximum extent possible, with the understanding that there may be differences between our proposed organization and the current organization.
Competitive Compensation	To ensure a high capture rate, Northrop Grumman will offer incumbent personnel a total, competitive compensation package (salary and benefits).
Preference for Seniority	We will give precedence to individuals with the highest seniority of service at the Commonwealth when all other factors (I.e., qualifications, experience, and record of prior performance) are equal.
Right to Verify Qualifications	We reserve the right to screen the existing personnel and seek independent appraisals of their past performance. We will hire only those employees who have good performance records, high work ethics and meet our qualification criteria for the job.

Exhibit 2-5. Illustrative Recruitment Guidelines. *We intend to capture all of the qualified incumbent staff to ensure continuity of operations, maintain morale during the transition, and demonstrate fairness to those individuals who have devoted portions of their careers to the success of the Commonwealth's mission.*

2.A.2.3 Start-up Activities. To ensure success of the implementation phase, Northrop Grumman will take the following actions immediately after start-up:

- Establishment of a toll-free hotline to answer questions concerning the partnership.
- Advertisement and production of open houses in the Richmond, Newport News, Roanoke and other metropolitan areas.
- Publish employment for roles not filled by current Commonwealth staff in the local areas to broaden our resource pool for any positions that are not filled by incumbent personnel.
- Designate a single point of contact and information source for all Commonwealth employees throughout the interview, hiring, and orientation process.

2.A.2.4 Implementation Risk and Risk Mitigation Process. Northrop Grumman believes one of the key factors to a successful implementation of this partnership is the risk management process. Potential risks must be identified and defined before action can be taken to mitigate them. Issues do arise and they must be managed appropriately to implement a smooth partnership with the Commonwealth. Northrop Grumman, using our risk management process, has identified transition risks and has provided recommendations to mitigate them, based on our experience, in **Exhibit 2-6**.

Risk Description	Unmitigated Probability • Near Certain • Probable • Possible • Improbable	Unmitigated Impact • Catastrophic • Critical • Marginal • Negligible	Risk Exposure • Near Certain • Probable • Possible • Improbable	Mitigation Approaches	Mitigated Exposure
Transition to new contract and contractor may result in loss of key skills and knowledge	Probable	Critical	Possible	Reduce probability to **Possible** and impact to **Marginal** by recruiting key knowledgeable staff to stay, and obtaining debriefs from key staff are leaving	Low
Limited knowledge of VITA Data Center details may impact ability to forecast cost and performance	Probable	Marginal	Moderate	Reduce probability to **Possible** and impact to **Marginal**. Develop detail due diligence plan and work with VITA to ensure all areas of exposure are explored.	Low
Desktop Services performance may be negatively affected by other Commonwealth contractors	Probable	Critical	Possible	Reduce probability to **Possible**. Develop working relationships with Commonwealth's help, and negotiate MOUs or other inter-contract agreements.	Low
Existing/planned support toolset may not support meeting SLAs as required	Probable	Critical	High	Detailed review of tools during transition period. Timely identification of proven tools from other Seat Management contracts, if needed.	Low
Delay of any new support tool installation/ implementation may affect our ability to meet SLAs	Probable	Critical	High	Work closely with the Commonwealth to develop prioritization of support tool installation/ implementation projects, so that the key SLAs are met quickly and so that agreement can be reached regarding timing for activation of additional SLAs	Low

Exhibit 2-6. Illustrative Risk Mitigation Table.

As the functional teams meet with the Commonwealth and become aware of additional risks, Exhibit 2-6 will be expanded and mitigation approaches developed.

2.A.2.5 Implementation Summary. Northrop Grumman is fully prepared to conduct a structured, process-driven implementation to achieve full operational accountability. Our approach highlights:

- Full and open communication with the Commonwealth
- An emphasis on providing value and continuity to the Commonwealth's mission

- A dedicated team to fulfill all transition objectives.

2.A.3 Data Center Approach

Northrop Grumman has successfully consolidated over 30 data centers over the last nine years as Northrop Grumman has consolidated 18 major companies through acquisitions within our company. These major acquisitions have presented a challenge when looking at how we would integrate all the resources of these 18 companies into a combined Northrop Grumman Corporation. Over these past nine years, we have extensive experience in the planning, design, movement, transition, execution and management of data center consolidation. Northrop Grumman is proud of our successful accomplishments in this area. We have taken our experience in these consolidation and management efforts and have used them for numerous State and commercial customers across the nation.

Northrop Grumman has successfully implemented our Managed Services methodology in delivering data center services to our customers. Our methodology incorporates all aspects of the IT implementation from mainframes to servers and to desktop consolidation and management. We incorporate Asset Management, Support Services and Infrastructure Support as the three main components to our methodology. These main components have been developed using industry recognized best practices. See Section 2.A.1 for a discussion on Managed Services.

Northrop Grumman is familiar with the Commonwealth's current mainframe environment. We understand the processing platform includes IBM and Unisys mainframes. Northrop Grumman has extensive experience in mainframe technology in use today. Northrop Grumman will utilize our experience in data center management and consolidation which employs the use of a detailed process to ensure all aspects of the Commonwealth's data center operations are understood. This process includes review of existing documentation, site visits, conducting interviews, completing consolidation check lists, identification of assets, valuing the assets, etc. This proven process supports our approach and understanding of data center operations to develop detailed plans for data center management and consolidation for the Commonwealth. We first look to understand and validate the current implementation of facilities. We validate all assets within the consolidation activity of location and description that support the processing workload for the Commonwealth. We then focus on key areas of the data center operations, which include:

- Facilities
- Hardware
- Software
- Telecommunications/ Network
- Production Control
- Operations
- Import/Output Sources
- Systems Management Services
- Business Recovery Services

From this detailed analysis, we then formalize our strategy and build our detailed solution, which includes a consolidation plan complete with an initial migration plan for Commonwealth assets and processing workloads. Typically, we organize this migration plan by agency. This is an organized approach that enables Northrop Grumman to define processing assets and workload units that are at a low enough level

to coordinate the consolidation and continued management during a transparent migration. The result is a comprehensive plan that contains individual plans by agency in a coordinated order by priority and impact to the Commonwealth.

Northrop Grumman's approach to mainframe, midrange and server resources is to consolidate as appropriate and reorganize the processing workload in a data center facility located in Richmond, Virginia. Our approach is to build a modern data center through a partnership with the Virginia Bio-Technology Research Park, and once built, leverage this new facility as a consolidated Richmond Operations Center. Until the completion of the Richmond Operations Center, our solution utilizes the existing Richmond Plaza facility.

In addition to constructing a new facility in Richmond, Northrop Grumman will also utilize the Virginia Advanced Shipbuilding and Carrier Integration Center (VASCIC), located in Newport News, to host a data center development environment and disaster recovery services for the Commonwealth of Virginia. This approach not only incorporates a dual data center concept, where the Richmond and Newport News facilities are connected via redundant telecomm, but it also leverages two Virginia-based facilities that the Commonwealth has made an investment towards in their establishment. Our approach maximizes a central processing facility concept along with another center for disaster recovery services, which are located in a different geographical proximity. This approach leverages the Commonwealth investment while providing a solid IT infrastructure design to virtually eliminate downtime due to outages caused by manmade events (i.e., power or telecomm interruptions) or by natural disasters.

As the consolidation effort proceeds, Northrop Grumman will provide facilities management services using our proven Managed Services methodology. The data center management responsibilities encompass a wide range functions that are typical to large-scale data center facilities.

Ongoing support for the mainframe resources and servers as they are being consolidated are coordinated in our detailed migration plan. Once the consolidation is complete, all mainframe and server resources housed within the data center facilities will be managed using our standard operations procedures. This includes the ongoing backup and monitoring of these assets and remote monitoring of servers.

The Commonwealth has initiated several activities with the creation of VITA to support consolidation efforts of Commonwealth IT resources. There are numerous benefits in consolidating these resources, but foremost on this list is cost savings. Northrop Grumman appreciates the Commonwealth's goals of reducing the cost within their IT budget. Northrop Grumman has faced this challenge over the past 8 years while consolidating the companies we have acquired and we have been extremely successful in achieving significant cost savings.

Benefits to consolidation are most evident in the ability to share cost across the enterprise. By consolidating the majority of the processing environments into a centralized processing complex, the Commonwealth can benefit from maximizing utilization of the hardware, software and facilities. This cuts down on redundant and often wasted resources that will benefit more of the users within the Commonwealth. By maximizing these IT resources, you can realize real cost savings across the enterprise.

Following closely on the heels of sharing costs across the enterprise is establishing a common processing platform. Our experience has shown us that, as an organization pushes further into a de-centralized implementation, the opportunity to "stray" from a common platform is inevitable. It happens because of time, money, and a parochial view of the enterprise. This is acceptable for the department or agency that is using the resource, but overall the enterprise suffers because it becomes more difficult to share systems, data and their implementation across departments and agencies. By consolidating the majority of the

assets into a centralized processing complex, one can begin to implement a common platform and manage it more effectively.

Complementing the common platform benefit comes the ability to implement common practices, processes, and standards to manage the infrastructure for the enterprise. This benefit allows the Commonwealth to see results in consistency in delivery of services. By utilizing common practices over the infrastructure of the enterprise, we can consistently predict the service delivery based upon metrics resulting from numerous years of managed service delivery for our customers. This consistent delivery translates into real cost savings because we manage all resources using industry proven processes and standards. These processes and standards are relied upon for defining and measuring performance against Service Level Agreements (SLA). It is the SLA that defines the expected results and it is the common set of practices, processes and standards that allow us to define specific service levels for our delivery.

The next benefit to consolidation is the ability to reduce/eliminate redundancy across the enterprise. As we consolidate the processing complex into the centralized data center, Northrop Grumman can begin to eliminate processes and work effort that has been performed in a duplicative way over the numerous IT implementations across the Commonwealth into dedicated processing that takes into account the enterprise processing requirements. Northrop Grumman has realized additional significant cost savings in reducing and eliminating these processes that exist in a de-centralized implementation. Another significant benefit to the consolidation is the ability to stay current with the emerging technology that can bring additional efficiencies to the implementation. Once the consolidation has been accomplished and the processing is standard and working in a predictable way, Northrop Grumman will continue to bring our expertise in the latest technology to see where newer technology may have a place in the Commonwealth enterprise. We don't use new technology for the sake of it being new. Northrop Grumman is constantly looking for the best and most efficient and cost effective ways to deliver services to our customers. Leveraging our proven methods and processes, we believe VITA can realize the following cost savings through consolidation as shown in **Exhibit 2-7**:

Objectives	Available Savings	Description
Raised floor consolidation	30%	Consolidation of IT sector raised floor systems by re-racking of equipment, server storage, application stacking, consoles, secondary storage, and creating lights out environment.
Servers consolidation	25%	Consolidation of workload of multiple servers onto fewer, larger, and more easily managed servers which will be supported by local technical staff which will result in high resource sharing between projects.
Improved utilization of current hardware assets	30%	Reallocate current assets to support development and business continuity when newer technology is implemented to support production environment. Retire all leased equipment where it makes business sense.
Backups consolidation	25%	Centralization and rehosting of backup/recovery to central servers by taking advantage of existing tape library. Implement sever-less backup and company owned off-site storage.
System management and support processes consolidation	20%	Centralization of systems and network management application, processes, and procedures.
Contracts	25%	Reduction and consolidation of maintenance license and

Objectives	Available Savings	Description
consolidation		other related contracts.
Business continuity consolidation	35%	Consolidate business continuity servers to reflect new architecture thus reducing the number of server and support cost.
Organization consolidation	30%	Establish centralized organization to be responsible for all systems and application management.

Exhibit 2-7. Estimated VITA Cost Savings.

Our internal integration and consolidation of 18 different companies over the past nine years and referencing our flagship IT consolidation program for the State of Texas, we are the best choice for the Commonwealth of Virginia in undertaking this significant effort. We know and understand how best to accomplish a task as encompassing as the one facing the Commonwealth today. We see great potential in consolidating the IT infrastructure for the Commonwealth to enjoy benefits of standard operating procedures and significant cost reductions based upon a focused and centralized implementation. By implementing our methodology, the Commonwealth can expect to see:

- Increased efficiency in maximizing processing uptime
- Standardized operating platforms
- Service levels developed in a risk sharing relationship between VITA and Northrop Grumman to guarantee system performance and service delivery

Implementing our Managed Services structure ensures that the delivery is consistent and predictable. The Commonwealth will benefit from this consistency with reliable service at a cost effective price. By implementing a dual data center approach, we build reliability into the delivery in the event of a disaster recovery exercise. The Commonwealth can focus on their core mission in serving the citizen while Northrop Grumman can partner with the Commonwealth to provide industry best-in-class service.

2.A.4 Mid-Range/Server

As VITA has recognized, a decentralized model for servers has a number of drawbacks that make it a more costly approach to doing business. First, it hinders the standardization of configurations because each site is going to have their own view of configuration requirements. Standard configurations lower purchase and support costs, improve the time to resolve problems and make the systems interchangeable. Second, the support model is more expensive and complex, requiring each site to staff extra resources to address vacations and sickness while still being able to support different computing environments. Third, hardware and software costs are generally higher because the tendency in a decentralized environment is to give each application or service its own server, and much of the support equipment needs to be replicated. “Economies of scale” is more than a phrase when it comes to computer equipment.

The centralization of all servers into a data center is not the best answer for most enterprises either, however a number of IT service providers choose to ignore, or generalize this issue. Some servers contain workloads that generate a significant amount of network traffic between the server and the desktop equipment at the same site. The cost of putting this type of traffic on the Wide Area Network (WAN) can significantly impact the savings that may come from other areas, and/or degrade service. Decisions to consolidate servers into enterprise data center(s) must be preceded with a detailed analysis where each site and each server environment is carefully analyzed to determine its usage and network profiles. This

profile provides the data needed to identify which servers can be cost effectively relocated, with the objective being to move the most servers possible, not to prevent cost increases in the network.

The cost reduction opportunities resulting from server consolidation (noted earlier in this section) can vary widely based upon how efficiently the existing server base is utilized and how many servers fall into the "too much network traffic to move" category. In order to obtain the highest Return on Investment (ROI), it is vital that the analysis focuses on consolidating the maximum number of servers. In Northrop Grumman's experience, which has been validated through benchmarking with Meta Group and Gartner, we find that 25% of the server population ends up staying at the remote locations. Additionally, we find that the server population can be reduced 30% to 40%, and the floor space requirements can be reduced an additional 35% through improved racking.

Server consolidation is a generalized term that encompasses physical relocation and applications stacking (Rationalization) to be effective, and should include applications consolidation to maximize efficiency. This is graphically depicted in the Gartner data shown in **Exhibit 2-8**.

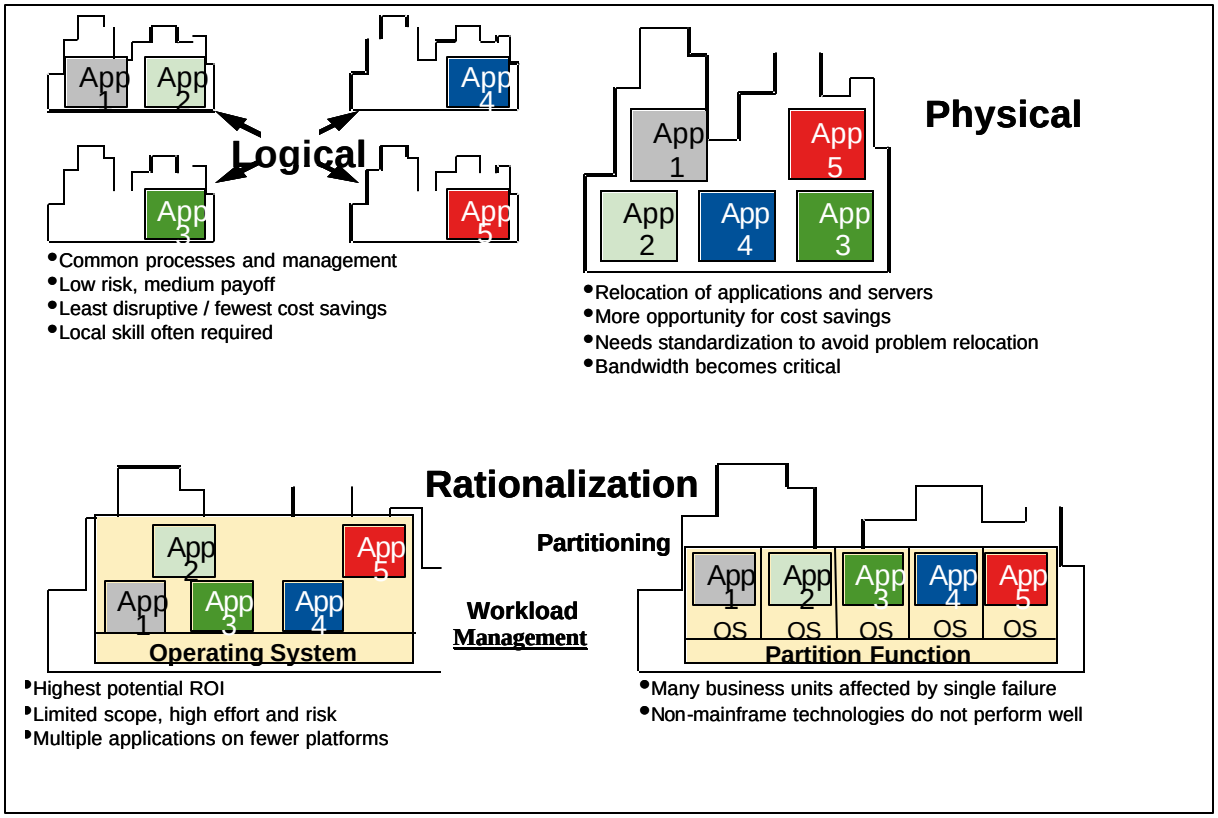

Exhibit 2-8. Gartner Server Consolidation Data.

2.A.4.1 Physical Relocation. The physical relocation of servers to a common location, such as an enterprise data center, provides the opportunity to get the most effective use from hardware, software and human resources while implementing and enforcing common procedures. It facilitates getting the most out of server resources by allowing the applications portfolio to be spread across a smaller number of servers. It also provides the opportunity to reduce the cost of data storage by sharing storage devices and Storage Area Networks (SAN). As mentioned earlier, the first step in planning for a physical relocation is to perform a detailed analysis that allows a network bandwidth profile to be constructed for each site and the enterprise data center.

When establishing enterprise data centers there are basically two options. The first option is to have one enterprise center that is sufficiently "hardened" to prevent outages through redundancy. This approach is sound and is a very good option for state and local governments because they are geographically confined. The second option is to spread the server population across two data centers that are separated geographically as much as possible. In this option, each data center can act as a backup for the other, providing disaster recovery capabilities. The facilities used for the two-center model do need to have backup electrical and cooling protection, but they can forgo redundancy in those backup systems, which the single center model cannot. In the one-center model, any outage that does manage to overcome the precautions put in place will terminate service to all end-users, while in the two-center model only half of the end-users are out of service. Choosing between the two-center and one-center model requires a cost vs. risk analysis to be performed.

For the purposes of this discussion, we are going to approach the data center environment with an option "one and a half". The primary data center would be in Richmond, with a secondary center being in the VASCIC or an alternative location in Southside Virginia. The primary center would contain all production computing and all servers providing the day-to-day services. The secondary center would have the applications test and development systems, with the computer hardware put in place at the VASCIC facility also functioning as disaster recovery backup for the major systems at the primary center.

Planning for the physical relocation of servers should include a thorough understanding of the equipment replacement/refresh plans already in place. These replacement machines can play a key role in the migration to the enterprise data center and lower the cost of the relocation.

Server dependency on resources at the site, as well as making sure all database servers reside at the same location as the applications servers they support, are important components when identifying the servers to be relocated. Once the network bandwidth profile has been developed and the servers to be relocated identified, a detailed move plan is developed, taking advantage of any planned outages like holidays.

Critical to the move plan are the steps for testing and verification of each workload, supported by a back-out plan in the event an unforeseeable event occurs during the actual move. Depending on the equipment replacement plans, some amount of "bubble" hardware will be used to run the workloads at the sending location while the site servers are being relocated. Bubble hardware is equipment that is rented for a short time and returned at the completion of the migration. Analysis may indicate an earlier replacement of the VITA equipment is more cost effective than bubble equipment.

2.A.4.2 Applications Stacking. A parallel analysis will be the review of the application portfolio for all the servers to determine which ones can coexist on the same server. This analysis is a key part of the effort because some applications could act like oil and water when placed on the same server, severely impacting the quality of service.

One of the benefits of co-locating servers into an enterprise data center is the ability to utilize unused capacity on existing servers. Application stacking is the process of placing as many applications as possible on as few a servers as possible, without overloading the servers.

While the analysis for applications stacking is done during the initial planning and design, the actual function is performed after a group of servers have been relocated and are operational for some period of time.

Through the process of server consolidation, the number of total servers will be reduced, which in turn will reduce the number of operating system images, which will reduce the support requirements, all of which result in lower costs.

Applications stacking can take on a different form in the case of larger servers that can be partitioned into many machines. While this approach is a good one, caution must be used because these larger machines generally have noticeably higher software license costs.

2.A.4.3 Applications Consolidation. Applications consolidation can have a high return on investment, however it can also turn out to cost much more than the savings. Consolidating multiple application images requires modifications to the implementation of that product and, in the worst cases, requires a complete reinstall of the product. This task requires significant analysis and in some cases a reevaluation of how the enterprise does their business.

The savings from applications consolidation can be dramatic if products, such as PeopleSoft and Oracle are involved. Not only are license fees to the manufacturer reduced, but also the redundancy in applications maintenance is eliminated.

2.A.4.4 Centralized Support Labor. With the first two of the three facets of server consolidation implemented, the labor required to support the data center (operations, systems administration and storage management) can be performed by a more concise group of people, freeing up resources to address more strategic IT matters within the Commonwealth. Northrop Grumman's experiences have shown that 25% to 35% of server consolidation savings come from the smaller population of people needed to support the environment.

Northrop Grumman recommends implementation of an automated toolset to manage the VITA environment and to provide the Customer Service Operations Center/ Help Desk with the capability to provide a higher percentage of first call resolution. These automated toolsets, such as BindView, allows the management and operation of the server environment from a command center type of work area, with the administration of all servers in the entire network performed from any single console device or Web-based console.

The command center work area where all server support would reside will contain monitors displaying the health of the environment and allow for a better interchange of ideas and information among systems administration and operations staff due to their co-location.

Due to the massive planning and analysis effort required to consolidate a server population that numbers into the thousands, it is best to concentrate on those activities upfront and only make minor adjustments to the master plan as the project moves forward. Northrop Grumman's experience suggests a relocation schedule that moves 20% of the servers the first year, 50% the second year and 30% the third year. A noticeable number of server consolidations fail to meet cost and service objectives when a decision is made to consolidate very quickly.

Agency requirements and VITA's analysis of the environment will weigh heavily in determining the schedule for the Commonwealth of Virginia.

2.A.5 Comprehensive Network Services

A solid enterprise network and systems infrastructure is core to building an agile IT architecture that will allow VITA to support integration of the in-scope executive branch agencies and sustain change to support transformational activities such as data center and server consolidations, enterprise messaging systems, implementations of enterprise-wide applications, and other planned consolidation activities. Both integration and transformation will put additional strain on the Commonwealth's network infrastructure.

Northrop Grumman proposes a managed partnership to support all VITA supported agencies and locations with architecture, networks and telecom design engineering, networks/telecom management, technology insertion studies, and technical support for wide area networks, local area networks, video conferencing,

and telecommunications systems. In addition to technical support, the managed partnership would include administrative support functions as required to manage the comprehensive networking services.

The anticipated results of partnering to implement comprehensive network services include:

- Developing an infrastructure based on VITA's e-government objectives that will enable secure collaboration and communications among state and local government entities, and Virginia citizens.
- Developing the business cases and implementation plans to consolidate Virginia's server environment into centralized computing centers enabling greater efficiency and providing recurring costs savings through reduced expenditures in all resources.
- Developing a long-term plan for leveraging Commonwealth resources, such as the Virginia Center for Innovative Technology and the Institute for Infrastructure and Information Assurance (IIIA) at James Madison University, as engineering laboratories to provide a common, agile infrastructure for testing new technologies and new product reviews.

2.A.5.1 Network Management. A Network Operations Center (NOC) is key to providing the type of reliability the Commonwealth of Virginia will require to service their constituency by monitoring the WAN, LAN, and converged communication environments. **Exhibit 2-9** is an example of a typical NOC environment.

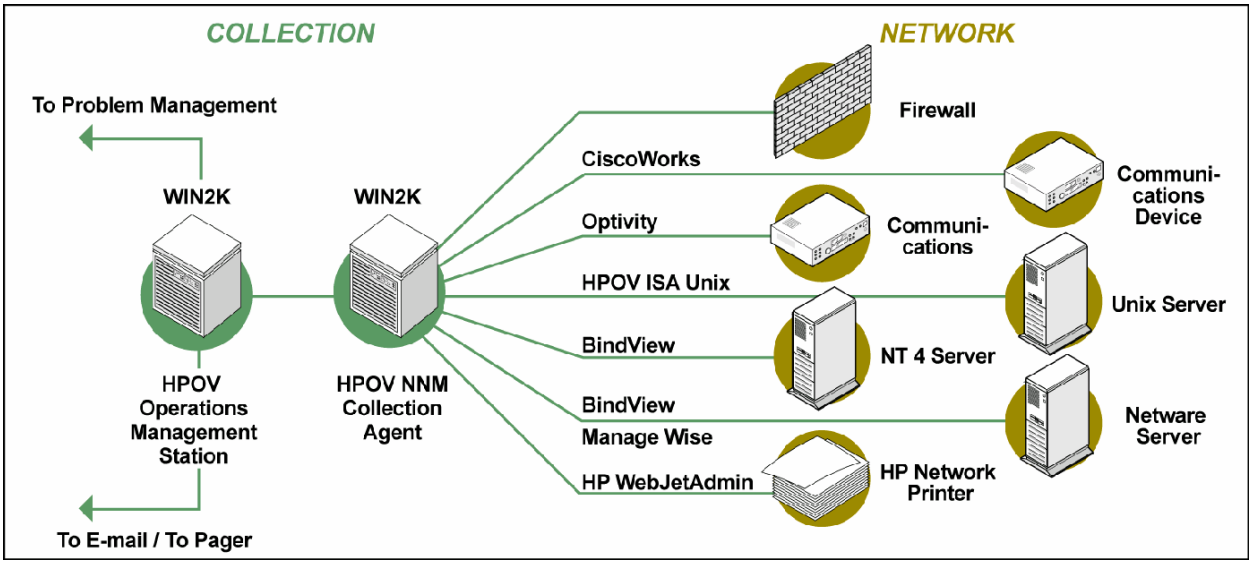

Exhibit 2-9. Illustrative NOC Environment.

The NOC collects data about network assets through various collection agents that aggregate status messages from sites that feed into core nodes and then forward this traffic to the NOC. In addition, the network management system will be configured to receive automatic alarms from all managed network devices in the network.

Receipt of these network messages and alarms generated provides the NOC with the means for evaluating the network health and status to assist them in rapidly identifying, isolating, and resolving network problems. Early identification of communication faults leads to reduced network downtime and improved network availability; identification of network bottlenecks and excessive device errors allows quick visibility into areas of degraded network performance; and identification of network over-capacity to

minimize cost while providing sufficient network bandwidth for applications. Network events correlated by rules that are based on empirical data gathered throughout transition and views of historical performance of network and server devices provide additional diagnostic tools to speed problem resolution.

The NOC will monitor network utilization, errors, and other performance metrics for trends to assist in identifying devices and circuits in need of remediation. Using this approach, bandwidth bottlenecks will be identified, monitored, and corrected – often before users are adversely impacted.

2.A.5.2 Wide Area Network. Network traffic that resides on the Local Area Network (LAN) today will become Wide Area Network (WAN) traffic after the consolidation. Determining the impact of the consolidation on the network is the focus of detailed analysis and is a discriminator in determining what servers move to the consolidated center. Additionally, in many decentralized environments, the distribution and usage of network bandwidth and resources is not well planned, providing the opportunity for reallocation of network capacity, or cost reduction.

A primary step in infrastructure consolidation is the analysis of the traffic directed at, and coming from, each server, taking into account message size and volume. Utilizing network-monitoring tools, a network traffic profile is developed for each site. This profile is the basis for determining which servers are best suited to remain at the site and to quantify the bandwidth requirement for each site.

With a thorough understanding of the network profile, and servers to be relocated to the central data center identified, the bandwidth requirements for the central site and the remote locations can be quantified. The existing network topology is analyzed to determine where circuits can be reallocated, upgraded or removed.

A key part of the restructuring of the network is to utilize technology that provides self-redirection of paths to overcome most outages. This methodology provides a cost efficient approach for redundant network requirements.

2.A.5.3 Local Area Network. Infrastructure consolidation has minimal impact on LANs; however, it could result in some amount of network equipment being freed up for redeployment to other locations.

In addition to partnering on centralized network services, Northrop Grumman can provide certified technicians to maintain each site's LAN, which is comprised of switches, routers, hubs and cabling. This network connects all of the desktop and laptop equipment to the WAN.

Our solution includes the Commonwealth's trusted industry partners that provide specializing cabling plant service to maintain the cabling infrastructure, known as the "cable plant". Changes to the cable plant can become necessary when offices, people, or equipment are relocated, and when new sites or offices are established.

2.A.5.4 Multiservice Networking.

Northrop Grumman IT delivers advanced IP networking solutions that integrate voice, video, and data - incorporating the convenience, flexibility, and cost-effectiveness of a single Converged IP Network. Through our partnership with the Commonwealth, we can leverage our expertise in multiservice networking to develop trade studies, create ROI analysis, and provide engineering services to support possible future transformation projects including:

- Converged IP networking - voice, video and data across one multiservice network
- IP telephony - reduces costs and expands features compared to the traditional PBX

- Advanced IP applications - unified messaging, e-Learning solutions, video conferencing, billing and accounting solutions, XML productivity applications.
- IP storage
- Wireless WAN/LAN

As part of the managed partnership, we anticipate working with the Commonwealth's communications carrier(s), including MCI, to provide integrated management and support of comprehensive statewide network services.

2.A.6 Security

In today's environment, it is critical to defend the information environment from unauthorized access, and to execute this with confidence, one must know how to attack.

Documentation provided by the Commonwealth did not detail specific security requirements. However, as the top information assurance systems integrator to the U.S. Government, we understand the need for coordination and consultation. We will work closely with VITA to identify security requirements that may go above and beyond those described below and design a solution that fits VITA's needs.

Primarily, security protection needs to address viruses that are in the wild and anyone attempting unauthorized access to the network or the computing platforms.

2.A.6.1 Anti-Virus Protection. Protecting desktop and server computing systems is crucial to maintaining availability and ensuring integrity of services and resources. Having extensive experience providing secure modes of operation, we will assess the tools currently in use within the Commonwealth to ensure security measures associated with desktop and server access, intrusion detection, and virus protection are met throughout the Microsoft, Novell and UNIX networking environment, recommending integrated products and tools where necessary.

All communications relative to virus information, control and infection reporting will be implemented through VITA's Customer Call Center (CCC) and NOC. A consolidated and centralized system management approach enables the Helpdesk/NOC to efficiently and effectively detect and correct virus intrusion. Desktop updates will be initiated though the combined use of automated distribution packages, login script processing, and e-mail messages. Individual customer requests will be supported via the CCC.

Having deployed and maintained centralized virus protection systems for a customer base in excess of 100,000 desktops and servers, Northrop Grumman recognizes that centralized management and deployment increase our ability to scale the scope of coverage. Our approach will ensure uniformity and up-to-date protection, reducing management problems and enhancing our ability to quickly react and mitigate risk associated with virus threats.

2.A.6.2 Security and Auditability. Security configurations will be documented and incorporated into the baseline configuration and software images. The inherent capabilities of NetWare NDS, and Windows platforms (including Active Directory, if applicable) are used to set access controls and user/computer policies relative to logon and network/resource access.

Local and central administrators will use the BindView product in the desktop and server environments to manage compliance with VITA security policies, audit for compliance with VITA security policy, perform central administration, and report about the enforcement of VITA policy. We will configure BindView to identify and correct security holes, and discover and document configuration issues across platforms,

directories, networks, and applications, thus enabling a centralized method for establishing security standards. We will enforce security policies, assess vulnerabilities, and audit critical systems including user and access rights, and provide security event log processing and reporting.

Northrop Grumman's solution for security leverages the overall system management capabilities of our integrated customer support approach to enforce the foundation of centralized management. From a single-point of control, we will provide a unique combination of vulnerability assessment, security policy auditing and enforcement, security administration, and closed loop security management.

2.A.7 Facilities

The Northrop Grumman long-term facilities plan calls for a central computing facility with a remote backup site and a single location customer support call center. After many discussions with the Commonwealth, local government and business leaders, and internal research, we believe Richmond, Newport News and the Southwest Virginia Promise region respectively provide the best locations for these facilities. **Exhibit 2-10** depicts our proposed facilities.

- The Consolidated Operations Center would be located in Richmond. Our suggestion is to initially consolidate into Richmond Plaza until a new state-of-the-art facility is completed to permanently house centralized IT operations and equipment. We feel an ideal site for the new Data Center could be located in the Downtown Richmond area where it would have minimum impact on staff transition as opposed to relocating outside the city.
- A Disaster Recovery/Test site would make use of the Commonwealth built facility in the Virginia Advanced Shipbuilding and Carrier Integration Center (VASCIC) at Newport News. If additional backup sites are requested or as an alternative, Northrop Grumman would recommend locating the site in an economically depressed area of Southside Virginia, such as Danville.
- The Customer Service Operations Center would be located in the Southwest Promise Region. Individuals from Northrop Grumman have toured the region and met with representatives from the Virginia Coalfields Economic Development Authority, Scott and Wise Counties Economic Development Directors, LENOWISCO PDC, Southwest Virginia Community Colleges and Virginia Workforce Services. The region boasts impressive capabilities and an available workforce with the capabilities required to provide first class service to the Commonwealth.

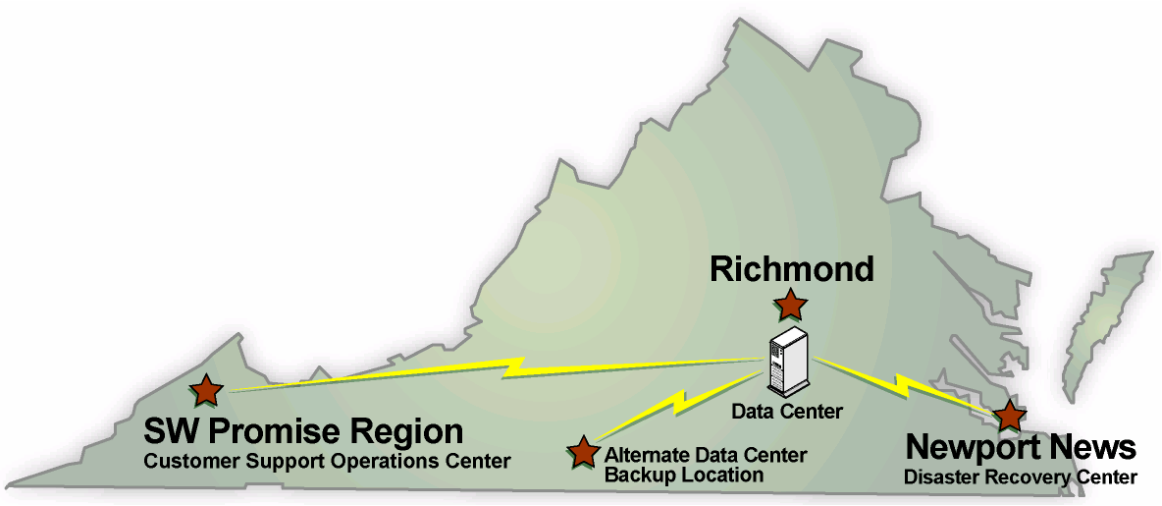

Exhibit 2-10. Proposed Virginia Facilities

2.A.7.1 Consolidated Operations Center. Northrop Grumman has reviewed the study conducted in 2002 on behalf of the Virginia Department of Information Technology and Virginia Bio-Technology Research Park (VBTRP) by McKinney and Company which provides a conceptual analysis for building and locating a centralized data center to support operations and management staff within the VBTRP. VBTRP was created as a partnership of Virginia Commonwealth University, the City of Richmond, and the Commonwealth of Virginia. The seven year-old Park is only one-third developed in downtown Richmond. In addition to downtown, VBTRP has partnership agreements with Henrico and Chesterfield counties that extend the reach to satellite parks in suburban communities should the Commonwealth desire to locate the consolidated center outside the City. Importantly, the VBTRP Authority has the capability to issue bonds to fund the majority of construction, substantial completion, and move in to this new facility without risk to the Commonwealth. The new facility would be built-out with the latest in technology and security as recommended by Gartner as well as the Bruns Pak Corporation. Based on the data in **Exhibit 2-11,** the facility would meet the TIER IV Center requirements.

The chart below illustrates Tier similarities and differences

	TIER I	TIER II	TIER III	TIER IV
Number of prod'n and delivery paths	1	1	1 active 1 passive	2 active
Component redundancy	N	N+1	N+1	2 (N+1) or S+S
Support space to raised floor ratio	20%	30%	80%	100%
Ultimate watts/ft^2	20-30	40-50	100-150	100-150
Raised floor height	12"	18"	30-36"	30-36"
Floor loading P/ft^2	£100	100	150	150
Utility voltage	208	208	13,200	13,200
Months to implement	3	6	15-20	15-20
Projected years of useful life	3-5	5-7	unlimited	unlimited
Year first deployed	1965	1970	1990	1994
Budgetary $ per raised floor ft^2	$400	$500	$800	$1,000
IT site downtime/yr Availability	18.5 hrs 99.789%	10.3 hrs 99.883%	3.2 hrs 99.963%	0.8 hrs 99.991%

Exhibit 2-11. Industry Standard Data Center Tier Classifications.

- **Tier I** - Single path for power and cooling distribution, no redundant components, 99.8% availability
- **Tier II** - Single path for power and cooling distribution, redundant components, 99.9% availability
- **Tier III** - Multiple power and cooling distribution paths, but only one path active, redundant components, concurrently maintainable, 99.96% availability

- **Tier IV** - Multiple active power and cooling distribution paths, redundant components, fault tolerant, 99.99% availability

Tier IV site infrastructures are the most compatible with high availability IT concepts that employ CPU clustering, RAID DASD, and redundant communications to achieve reliability, availability, and serviceability.

The Consolidated Operations Center facility to be provided for this engagement will be designed to tolerate all types of electrical faults, power surges, and short term or long-term power outages through the use of our state-of-the-art Uninterruptible Power Supply (UPS) system. The Center will have a robust UPS system in place that includes utility power conditioning, backup batteries, automatic transfer switch, and a standby diesel power generator with a 72-hour fuel supply. The UPS battery bank will be continually monitored through the use of a battery validation system. The battery validation system reports any abnormal conditions with the batteries, enabling proactive battery maintenance to ensure that the battery backup functions properly in the event of a utility power outage.

The Center Computer Room will be protected from fire hazards by a state-of-the-art FM-200 fire suppression system. The Center Computer Room will utilize multiple 30-ton computer room air conditioning systems consisting of in-room air handlers and roof-mounted chillers and condensers. This configuration will provide 100 percent redundancy. Each system is capable of accommodating the required heat load in the event of failure of the other systems.

In addition, the Center Computer Room will be equipped with a water detection system that encompasses the entire computer room sub-floor area. The detection of water within the computer facility, particularly under the raised floors, is vitally important to prevent electrical shocks, short-circuits, and equipment damage.

As proposed operators of the center, Northrop Grumman will maintain vendor-approved maintenance agreements on all facilities equipment described above. The fire suppression and water detection systems are inspected by a vendor approved service company on a bi-annual basis to assure functionality.

2.A.7.2 Disaster Recovery/Test Center. In 1999, the Commonwealth assisted Newport News Shipbuilding in the funding and development of a state-of-the-art research and development facility. Since its completion, the VASCIC Center has assisted Northrop Grumman Newport News in its ship design and technology testing.

The VASCIC is one of the most secure facilities ever built in Virginia. Some key components of the facility include: State-of-the-art Auditorium/Theater and presentation complex; café; meeting and conference rooms; a sensitive compartmented information facility; 86,000 square feet of Research Center Integration Area (46,000sf on 24" raised flooring); Machine shop; Electronics lab; Antenna tower complex and a full complement of audiovisual equipment.

This facility also is home to a cooperative between Northrop Grumman and the Virginia University System for the educational advancement of their engineering curriculum. Universities such as Virginia Tech, University of Virginia and Old Dominion University send engineering students here for hands-on research and development activities.

Northrop Grumman would make part of this facility available to the Commonwealth as a Remote Backup facility. This site would be used as a development/test environment but also with a disaster recovery component. A server farm could also be located here for further redundancy.

The remote facility would essentially duplicate components of the Consolidated Operations Center, located in Richmond.

Northrop Grumman understands the Commonwealth's desire to support technology job growth in rural and economically depressed locations. As an alternative to implementing disaster recovery and backup services from the VASCIC in Newport News, Northrop Grumman provide the option of locating these services in Southside Virginia. In support of this option, Northrop Grumman personnel have conducted several exploratory conversations with the President of the DPC Community Foundation. An exploratory trip to the region is scheduled for early June.

2.A.7.3 Virginia Customer Support Operations Center (CSOC). The third component of our Partnership Facilities Strategy would be to expand on VITA's Consolidated Call Center (CCC), currently being implemented to consolidate the multiple IT Help Desks within the Commonwealth into a single call center to provide service to all 90 executive agencies and other state and local government entities. This center could be located in the Southwest Promise Region of Virginia. This region has invested heavily in the infrastructure and educational support services needed to operate an effective center. Several new facilities are in various stages of completion and could be expanded to include the VCSOC.

The VCSOC would be built out and equipped to support the current call volume at the time of implementation, with sufficient growth and expansion availability. The center would be staffed with personnel to address all Tier 1 and Tier 2 level calls. The VSCOC would be linked through the Northrop Grumman Global network to our other support centers, which would be leveraged to provide back up, after-hours, or overflow call volumes. The facility could also serve as a hot-site for servers and Telecom equipment.

Services provided from centers outside of Virginia will be limited to exception services, as it is our objective to support economic growth and technology transfer to Southwest Virginia. Locating the VCSOC in Southwest Virginia would have considerable economic impact on the region and assist in the revitalization efforts of the area. The Center would bring in new jobs while providing training, a work-study program and new tax based revenues to this area. All Virginia's Agencies and Customers would use the new Center.

2.A.8 Disaster Recovery Planning and Execution

Restoration of computing services following a disaster requires the coordinated action of many agencies and individuals. These actions must be planned, documented, and rehearsed before a disaster strikes. Disaster recovery requires the rapid and reliable migration of critical operations to an alternate recovery site in a manner that quickly re-establishes data communications and processing to all Commonwealth customers. Northrop Grumman has extensive experience in disaster recovery planning and execution, as was highlighted in Section 1.

To set the stage in explaining our approach for disaster recovery planning and execution, it is important to note our overall approach in our strategy for deploying our hosting for the Commonwealth of Virginia. Utilizing a central hosting facility in the city of Richmond, Virginia, the facility will be designed to accommodate a varied number of interruption events such as power and communications. In addition, we propose to utilize the Virginia Advanced Shipbuilding and Carrier Integration Center (VASCIC) in Newport News, Virginia. The VASCIC allows Northrop Grumman to establish a second data center within Virginia to accommodate data center hosting for development activities as well as disaster recovery services. This facility will be designed and outfitted in a similar manner as our main data center that is located in Richmond, Virginia. Utilizing a second data center located within Virginia for disaster recovery capabilities provides a robust and coordinated solution for the Commonwealth of Virginia.

If a disaster is declared, Northrop Grumman will be able to switch critical processing over to the VASCIC data center with limited downtime. The VASCIC would be outfitted with redundant telecomm and power

supply. By establishing two data centers within the state that are physically located away from each other but are connected via redundant telecomm and different power supply, Northrop Grumman can establish a very sound and reliable data center solution to the Commonwealth. In the next section, we explain our facility design and set up that accommodates a robust disaster recovery configuration.

2.A.8.1 Disaster Recovery Services. Northrop Grumman is experienced in providing existing clients with Disaster Recovery Services and will provide services to the Commonwealth that will include a comprehensive set of procedures to recover critical processing systems at our disaster recovery data center located at VASCIC in Newport News, Virginia. The disaster recovery procedures will provide for the recovery of the hardware configuration, the entire operating system, and all critical application data and systems as identified within the recovery plan that will be established at the onset of our contract with the Commonwealth. Access to the recovered environment will be provided through a redundant switched network line of adequate speed. The redundant switched network line will be established and tested prior to disaster recovery testing.

Northrop Grumman will perform disaster recovery tests annually for the duration of the contract. Successive disaster recovery tests will include the recovery of the entire system, network and include user testing. VITA and agency staff will be required to participate in the planning and testing of each disaster recovery test. It is the desire of the Northrop Grumman team that the VITA staff actively participates in the recovery process at the disaster recovery data center (VASCIC). This experience will provide a transfer of disaster recovery knowledge to the VITA staff. The disaster recovery knowledge and experiences can be applied to the recovery of other computer systems.

In addition to our two-center approach, Northrop Grumman has a strategic relationship with SunGuard, and can provide additional disaster recovery services through this relationship.

2.A.9 Enterprise Desktop Support Services

Northrop Grumman's approach to supporting an IT infrastructure as diverse and large as the Commonwealth's is based upon a centralized management support structure. Our proposed centralized support model and utilization of Best Practices promotes standardization, ensures consistent quality of service and reduces administrative overhead. It also eliminates redundant services, software, and hardware, and reduces risk. Northrop Grumman currently employs this model to support our own IT infrastructure. Our many local, state, federal and commercial customers also attest to the benefits of this model.

As a top tier systems integrator, Northrop Grumman has strategic partnership relationships with large OEMs, including Dell, Gateway, HP, and IBM. We have worked with all of these organizations to develop and implement enterprise solutions in support of our federal, commercial, state, and local government clients. To support the proposed partnership with the Commonwealth, Northrop Grumman anticipates leveraging our strategic relationships with one or more of these organizations.

Northrop Grumman will employ established "best practices" to implement desktop support for the Commonwealth as described in **Exhibit 2-12**.

Best Practices	Benefits
Lock down software and hardware	Lockdown of software and hardware will facilitate accurate asset tracking, increase system stability, supports a common operating environment, and mitigate potential licensing issues resulting from improper/unlicensed software installations.

Best Practices	Benefits
Plan hardware acquisitions taking into account that hardware capabilities exceed software requirements	This approach will increase hardware longevity, ensuring compatibility and operability of current and future versions of required software.
Standardize hardware vendor	Utilizing a series of Commonwealth selected hardware vendors will result in reduced support costs.
Leverage the integrated infrastructure (tools, people process)	Leveraging an integrated infrastructure will facilitate a seamless transition and implementation of the statement of work, reduce costs, and mitigate potential support challenges;
Provide call center, remote takeover, Auto-discovery, and inventory tools	The utilization of the Northrop Grumman processes, procedures, and established facilities will result in a seamless transition for VITA customer.
Deploy PC staffing to provide help at the right location	Ensuring field engineers with the proper skill sets are deployed to needed locations will facilitate support, mitigate the need for return site visits, and reduce costs.
Implement image management	This approach will ensure consistent, stable software configurations across the customer environment, and supports a common operating environment, while reducing upgrade implementation costs.
Use standardized automated migration strategy and tools	The application of repeatable processes will ensure consistent user migrations, reduce costs, minimize refresh cycles, and increase customer satisfaction.

Exhibit 2-12. Best Practices Approach. *Northrop Grumman will continually apply the best business practices where we can define a benefit to the Commonwealth to ensure efficiency of operations.*

2.A.9.1 General Desktop Services. Northrop Grumman proposes to create a partnership with VITA to provide desktop support, problem remediation, and IMAC services for all VITA managed equipment. These services shall include support for and remediation of problems involving the Commonwealth's distributed computing environment, including: printers, scanners, multi-function printer-scanner-faxes, PDAs, external drives, external CD writers and other peripherals. Northrop Grumman will provide all necessary personnel, replacement parts, tools, test equipment, diagnostic software and other necessary items to perform the required activities.

2.A.9.2 New Technologies. Northrop Grumman will support VITA in any new technology initiatives. Implementation of a Technology Review Board with VITA/Northrop Grumman personnel can help track new and emerging technologies that could benefit the Commonwealth and is in their strategic planning.

2.A.9.3 Desktop Support Problem Remediation. Upon completion of any desktop support service, changes made to the Commonwealth's IT environment will be recorded for update to the Commonwealth's asset management database. As per the VITA Standard Operating Procedures Manual and following completion of a desktop support service, Northrop Grumman will have the user acknowledge that the service request or problem remediation activity was accurately and satisfactorily completed.

2.A.9.4 Virus and Intruder Services. Protecting desktop and server computing systems is crucial to maintaining availability and ensuring the integrity of services and resources. See the prior section 2.A.6 on Security.

2.A.9.5 Configuration Design and Testing. Following Commonwealth requirements, Northrop Grumman will work closely with VITA to establish and/or determine the initial configuration of the base

desktop images and optional desktop images of all desktops and laptops. After image configurations are established, Northrop Grumman will work with the Commonwealth to create, test, certify, manage, update and maintain actual working desktop images and image documentation.

2.A.9.6 Service Requests. We have crafted a solution that is prepared to respond to remedial break/fix and installs, moves, adds, and changes (IMAC) service requests for all in-scope Commonwealth equipment as needed. Our solution provides centralized management of all such service requests, while field engineers fulfill service requests. By applying Northrop Grumman's proven service request processes and procedures, we can efficiently and expediently fulfill all such requests by the Commonwealth. The IMAC processes will cover:

- **Responsibilities common to multiple service request activities** - Northrop Grumman is an industry leader recognized for developing and implementing repeatable processes and procedures for all types of IT services. Prior to providing service, Northrop Grumman and VITA would work to develop detailed checklists outlining all required steps for each service activity. Field engineers will execute service in accordance with approved procedures.
- **Install pre-delivery preparation (PDP)** – Northrop Grumman will receive, store and safeguard all received in-scope equipment in the Commonwealth-provided staging facilities. All equipment received will be properly configured, optional equipment installed, and systems tested as per VITA standards.
- Installs
  - Install shrink-wrapped and custom software
  - Install local and network printers, including drivers
  - Test network connectivity (unless equipment is a stand-alone device)
  - Ensure that newly installed equipment (PCs, monitors, local and network printers, etc.) is "locked down" according to Desktop Procedures Manual
  - Provide locks with master key system for new installs, if currently used by VITA
- Add/Changes
  - Install shrink-wrapped and custom software
  - Pack and unpack equipment as necessary
  - Install/test any new peripherals
- Moves
  - Physically move equipment within buildings or between buildings
  - Make any necessary address changes to the device
  - Test for network connectivity and coordinate with appropriate support departments as necessary to establish network connectivity
  - Update asset tracking records to reflect any changes
- De-installs
  - Prepare equipment for disposal or reinstallation, including hard drive reformatting
  - Cascade deinstalled equipment on request
  - Move equipment from installed location to storage or disposal area
- Cascades - Reinstall used equipment on request and transport equipment to and from installation site.

2.A.9.7 Post-IMAC User Support. To minimize possible disruptions associated with changes, modifications, upgrades or maintenance activities, Northrop Grumman will support users after any IMAC activity. After completing each successful IMAC, our support personnel will make certain that all affected equipment is fully operational and will conduct a brief orientation and question/answer session with the affected end user(s).

2.A.9.8 Hardware Break/Fix Remediation. Northrop Grumman is committed to providing the Commonwealth with the highest level of hardware break/fix remedial maintenance.

2.A.9.9 Warranty Support. Northrop Grumman possesses and will provide evidence of its certifications to provide warranty support for OEM equipment in-warranty during the contract term. For in-warranty equipment from other OEMs, we will make every reasonable effort to obtain required warranty certifications necessary to perform contracted services and ensure all in-scope items under warranty receive support from certified engineers.

2.A.10 Asset Management

Northrop Grumman proposes to implement a full life-cycle asset management solution that includes collecting data related to IT hardware and software assets throughout the Commonwealth and providing information that will assist in IT strategic planning and support (refer to **Exhibit 2-16**).

Asset management:

- Encompasses processes, people to place the processes into action, and tools to support the implementation and reporting;
- Will provide integration between the call center, procurement, and the asset repository to enable the identification, ordering, and tracking of IT assets;
- Covers the complete life cycle of an asset, from planning for the asset, procuring the asset, deploying the asset, maintaining the asset, auditing the asset, and, finally, disposing of the asset.

Northrop Grumman Asset Managagment

Complete Asset Life-Cycle Management for the Commonwealth's Assets

Procurement/Tracking/Disposal

- ***Maintains asset location and identification (vendor, model, etc.),***
- ***Assists in planning upgrades and migration,***
- ***Tracks warranties and maintenance,***
- ***Associates problem history with asset,***
- ***Provides visibility into software licenses,***
- ***Interfaces with HR, and other support systems,***
- ***Retains assets according to the***

Northrop Grumman's asset management repository:

- Provides support for multiple agencies/entities;
- Is built upon business rules that support all asset life-cycle phases;
- Uses an open relational database schema that will employ a web interface for easy data viewing and reporting.

Extracts from the Commonwealth's HR system will be used to retrieve personnel related information, in support of the call center, the e-procurement system, and the asset management system. Northrop Grumman may provide interfaces with other support systems as needed.

The Asset Management repository will leverage VITA's completed work to create the VCCC. In developing the partnership between VITA and Northrop Grumman, we will evaluate the VCCC tool set for compatibility and jointly develop an implementation strategy to capture strengths from both systems. The goal will be to develop a solution from the start that provides complete lifecycle management of the Commonwealth's assets.

Northrop Grumman will implement asset management in three phases, as seen in Exhibit 2-13, to ensure the asset management system is populated with appropriate data elements and business rules to meet the Commonwealth's needs.

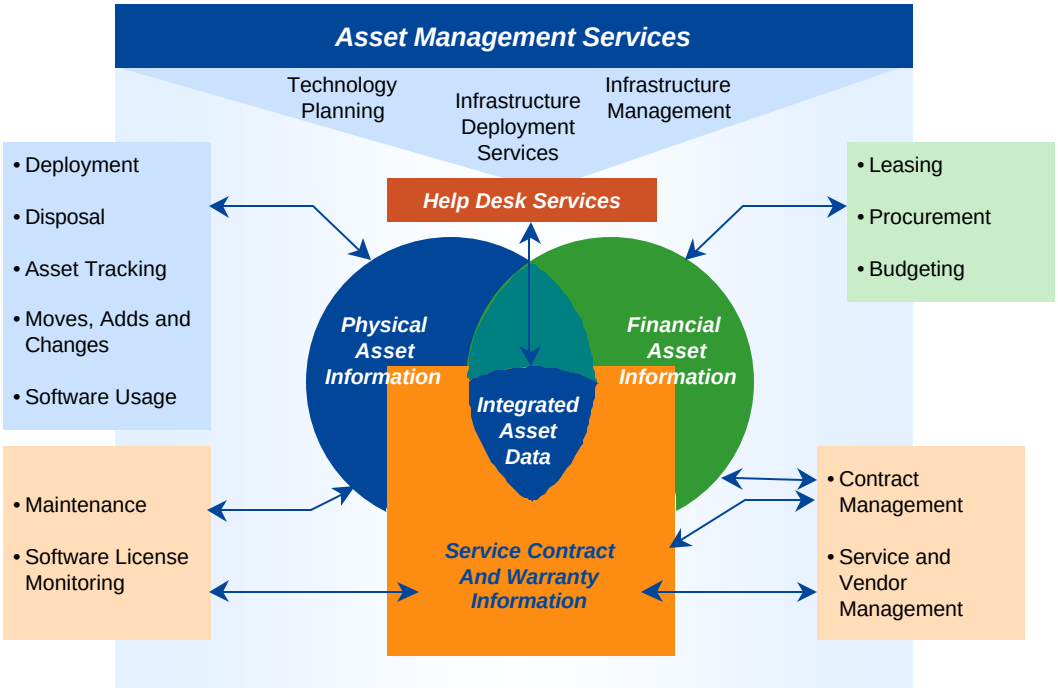

Exhibit 2-13. Integrated asset management provides basis for business management decisions concerning the Commonwealth's IT infrastructure.

Phase I: Definition Phase—This phase employs joint planning with the Commonwealth and Northrop Grumman. Customer contacts by location and responsibility will be defined. Detailed interfaces with existing Commonwealth systems will be further defined. The detailed plan for the wall-to-wall inventory will be established and approved and the asset management infrastructure implementation plan will be finalized.

Phase II: System Install/Data Collection—In partnership with VITA, Northrop Grumman will install the asset management infrastructure, create the business rules, define the schema, and test the installation. We will implement and test the automatic program interfaces (API) between required systems. The web-based catalogue will also be installed at this time. A tailored training program for Commonwealth personnel will be developed and submitted to the Commonwealth for approval.

Northrop Grumman will populate the base asset repository using a combination of auto-discovery tools, existing asset database information, and, through the execution of a wall-to-wall, tag and track inventory. Software assets will be gathered using an auto discovery tool. Support from the Commonwealth will be required to populate and verify pre-existing personnel and personnel related information and to identify contractor personnel to be entered into the system.

Phase III: Production—Northrop Grumman will provide on-going support for the installed system. We will continually seek ways to improve the effectiveness of the asset management processes and tools. Asset-related data is provided from ticket information that is collected in the Call Center. Problem management reporting will occur through the Call Center. Once in the production phase, asset management can be viewed as three phases within the life cycle of an asset, as shown in **Exhibit 2-14**.

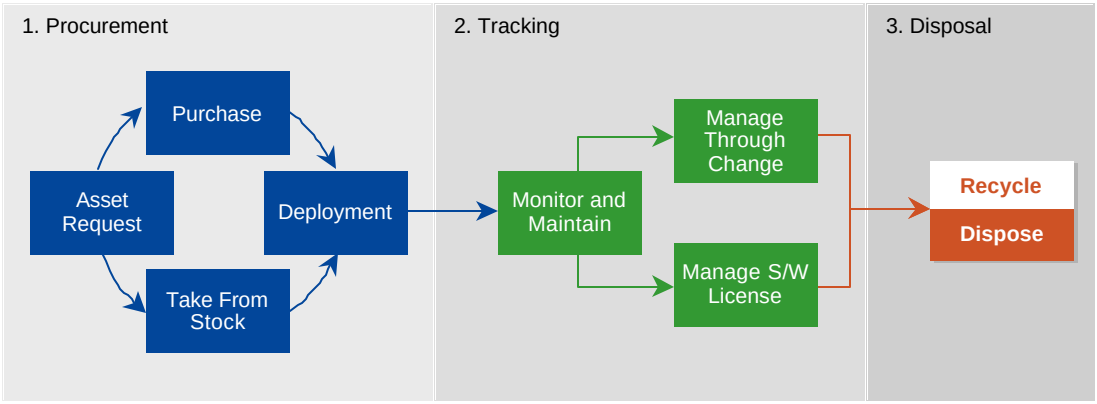

Exhibit 2-14. Northrop Grumman's Asset Management solution supports the Commonwealth's full life-cycle needs.

Procurement Phase—User requisition processing, acquisition, and deployment of an asset to meet a user's need;

Tracking Phase—The monitoring of the state of an asset during its use in support of a user's needs;

Disposal Phase—Maintaining information concerning an asset when it is no longer needed to fill the initial requirement.

2.A.10.1 Procurement. Northrop Grumman will create a web-based multi-vendor catalogue enabling Commonwealth personnel to acquire desktop equipment. The catalogue will contain Commonwealth approved hardware and software.

Establishing the catalogue of products will involve collaboration between Northrop Grumman and the Commonwealth. The catalogue will contain only those items approved by the Commonwealth for acquisition following detailed testing to ensure conformance with the Commonwealth standards. The process will include a workflow system that will route the catalogue requisitions from the user through the Commonwealth's approval cycle and then to the Northrop Grumman supplier for fulfillment.

Trained personnel will inspect all equipment received at the staging facility using established quality assurance procedures. Incoming assets will be scanned using a barcode scanner, allowing technicians to quickly and accurately capture information. The equipment will then be prepared for storage as demonstrated in **Exhibit 2-15**.

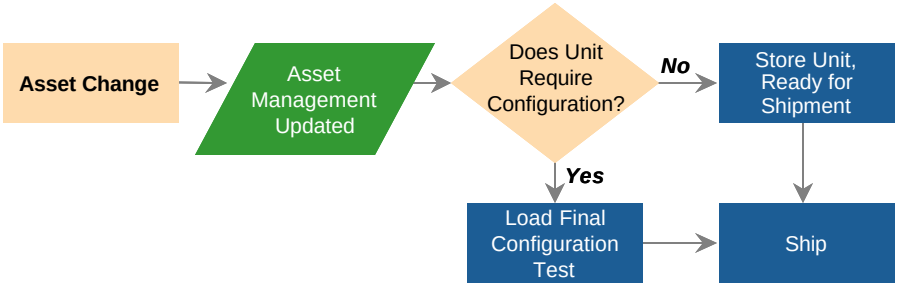

Exhibit 2-15. Northrop Grumman Receives, Inspects and Store Equipment Pending Delivery.

2.A.10.2 Asset Tracking. Asset tracking will be provided to control the lifecycle of the Commonwealth's hardware and software assets. Assets will be monitored and maintained. Changes to assets will be managed through the use of auto discovery tools and processes. In addition, software licenses will also be managed.

2.A.10.3 Monitor and Maintain. Maintaining an accurate, centralized asset repository is a critical and ongoing process. Information contained in the database is used to return users to their original configurations in the event of a system crash. Enterprises often capture asset information at purchase with some success. However, within a short period of time, the data repository will become outdated. To overcome this issue, a three-way reconciliation process is used to eliminate redundant data and ensure that personnel on the frontline—central receiving, call center, hardware maintenance, and deskside support staff—are providing–accurate and complete data. The goal is to efficiently collect data on the procurement, distribution, health, and disposal of all systems and to effectively communicate this information to the appropriate managers.

2.A.10.4 Manage Through Change. As part of routine asset management procedures, Northrop Grumman will establish, maintain, and document baseline hardware and software configurations for the components. This information will be stored within the asset management system that is routinely verified to ensure that optimal performance and application of commercial best practices are being used.

2.A.10.5 Software/License Management. The asset management repository will contain summary and deployed software license information. Access to this information will provide the Commonwealth visibility to software licenses, including identification of the deployment of authorized licensees with the actual installed configuration and software license allocation. Automatic discovery and periodic samplings will provide software license monitoring to indicate what software is on each machine, what is being used, and more importantly, what is not being used. License tracking and use will help ensure license compliance by controlling exactly how many users run a particular application. Periodic audit results will allow VITA to reduce cost by:

- Avoid paying for unused licenses;
- Make informed decisions about the allocation of software resources; and
- Plan for future software purchases.

Northrop Grumman provides a comprehensive asset-contracts management capability that will track and manage warranty and lease information. We will work with the Commonwealth's IT procurement and contract personnel to develop processes and procedures to ensure that up-to-date information is represented in the asset database.

2.A.10.6 Storage and Disposal. Northrop Grumman understands the importance of disposing of hardware and software in a secure manner. On-site technicians will follow a checklist to make certain that:

- Assets are tested to determine accessibility;
- Data and software are permanently removed from hard disk drives; and
- The asset management system is updated.

Following the cleansing of the equipment, the device will be either stored in a secure location and marked as ready for deployment, or information will be provided to the Commonwealth's designated personnel for removal from the asset inventory.

2.A.11 Customer Service Center Services

Northrop Grumman proposes to provide a Unified Customer Service Center (CSC), also called CSOC, based on our Service Delivery Model as depicted in **Exhibit 2-16**. The Commonwealth will benefit from Northrop Grumman's proven experience in delivering efficient CSC and desktop support services managed under a single Program structure. Other benefits include the availability of CSC data and metrics resulting from the ownership of all desktop support services by a single provider. If another internal or external supplier provides aspects of CSOC service, Northrop Grumman will specify and present requirements that the supplier must furnish to provide a consistent, measurable service.

2.A.11.1 Experience and Vision. Northrop Grumman configures IT Help Desk solutions to specific requirements, drawing from our experience in operating both centralized and site-specific support centers. Our six (6) Customer Service Centers (CSC's) located throughout the country are interconnected by state-of-the-art telephony systems that incorporate skills based routing and remote agent technologies, thus providing seamless access to technical expertise.

Through our IT Help Desk services, Northrop Grumman currently provides comprehensive telephone, email, and web-based IT Help Desk services to over 100,000 end-users. These services have been established for over 20 years.

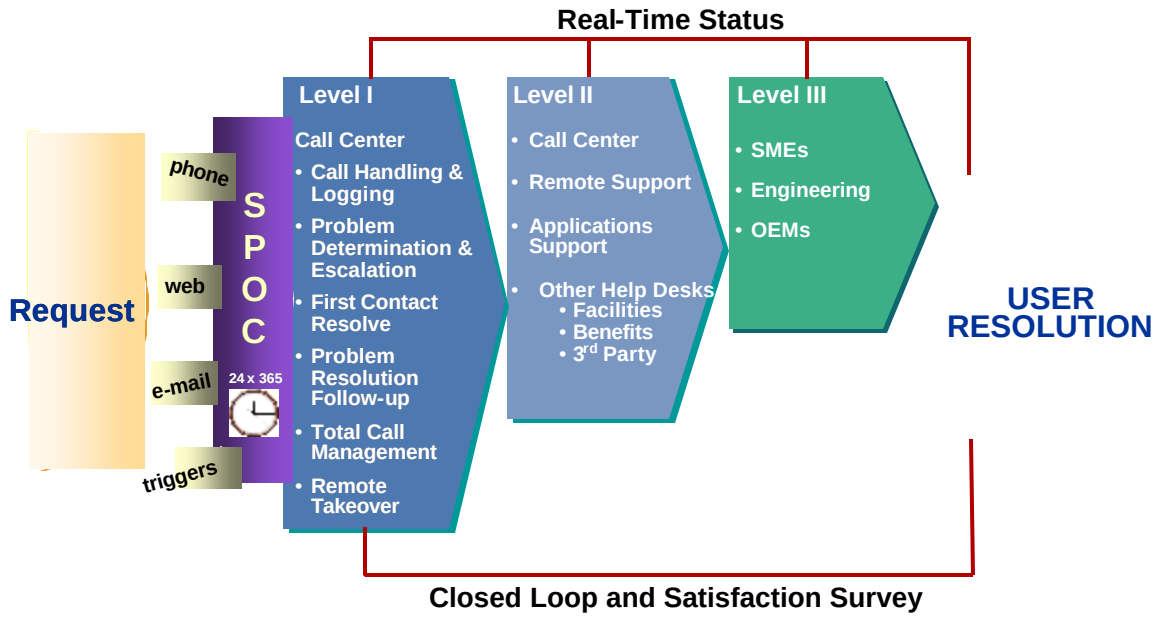

Exhibit 2-16. Northrop Grumman Service Delivery Model.

All of our CSC's provide industry best practices support based on uniform tools and processes, however this support is often customized to include specific requirements that a customer may have. Northrop Grumman has experience in implementing on-site help desks that are co-located within customer facilities, or combinations of local and remote help desks to meet changing business requirements.

We have made a significant investment in our CSC's to accommodate full life cycle support for our customer's assets. Using our integrated asset management and help desk software, Northrop Grumman manages customer resources from purchase through retirement. This provides our help desk analysts with a tremendous advantage in resolving problems.

2.A.11.2 Single-Point Of Contact. Northrop Grumman's Help Desk services are structured and continually optimized to function as a Single Point of Contact (SPOC) for all IT support within the VCCC enterprise. Although each agency may specify different requirements for service delivery, our standard support model defines the help desk as the customer's focal point for all support calls. The help desk maintains SPOC responsibility from initial contact through final problem resolution.

Our help desk analysts are experienced in troubleshooting and categorizing incoming calls. The analysts quickly provide an initial call screening to determine specific customer or agency, problem type, equipment type, and severity. After the call screening, the analyst immediately begins problem identification and initiates the resolution process.

Northrop Grumman's Help Desk services are designed to resolve many problem calls on the first call, thus avoiding the expense and relative delays of dispatching field support. Our approach to increasing First Call Resolution (FCR) includes the use of a highly customized knowledge database to provide analysts with resolution information on the standard suite of products, as well as access to unique information and software tools. Northrop Grumman will also team with the VCCC to provide the help desk with access to VCCC technical databases as appropriate.

The standard process followed by the Northrop Grumman help desk on events that are not resolved on the initial call is defined as follows:

- If the Level 1 analyst is able to determine the cause of the problem and the cause requires in field service, the analyst will dispatch to the appropriate support organization
- If problem cause is unclear or requires specialist support, the Level 1 analyst will route to Level 2 technical staff within Northrop Grumman, the customer's organization, or a third party provider, for further troubleshooting and diagnosis, as necessary
- The Level 2 analyst will resolve or dispatch appropriately
- Upon resolution by the assigned support organization, the ticket will be updated and dispositioned.

Throughout the lifecycle of problem resolution, the end-user can rely on the help desk to retain ownership of their problems, and provide a single point of contact for status.

Our problem and call management system has a web-based reporting interface for service requests and ticket status. Our on-line knowledge base tools and problem/resolution databases provide the means for remote diagnosis and problem trend analysis.

2.A.11.3 Reporting. Northrop Grumman will provide standard reports to measure service utilization and volumes in the VCCC environment. Northrop Grumman will work with the VCCC management team to define any additional reporting requirements, and to ensure that reports accurately measure performance, and that call volume histories are recorded as necessary.

2.A.11.4 Customer Satisfaction. Northrop Grumman's Help Desk services are based on the philosophy that a problem is not closed unless the customer says it is closed. Our standard call closure process utilizes the Siebel problem management system to generate an automatic survey to each customer once the problem status is "resolved".

Additionally, to better understand how we are performing with the VCCC, our help desk routinely surveys a sample of end-users that have recently received support. End-users are asked five basic questions regarding the quality of the resolution, timeliness of the resolution, technical competency of the support analyst, professionalism of the support analyst, and their overall satisfaction. Feedback from these surveys is used as input to our continuous process improvement programs.

2.A.12 E-mail Consolidation

E-mail consolidation has been identified by VITA as a prerequisite to achieve their cost saving objectives. Project P000211 in the Report of the Information Technology Board indicates:

> *"The goal of the Commonwealth Email (and File Server) Consolidation Project is to reduce IT costs and improve service to customers through the consolidation and elimination of redundant systems. E-mail and file server consolidation can provide the Commonwealth with a cost effective, secure, integrated solution that will reduce complexity and consolidate existing disparate systems into a single integrated platform, based on a common, standard, and modern technology infrastructure. A preliminary business case analysis identified the potential cost savings and benefits that can be expected from the project. Projected savings over a five-year period are estimated to be as high as $64,000,000."*

Northrop Grumman is offering a cost effective, comprehensive, consolidated e-mail solution based on our strategic partnership with Microsoft. VITA's vision to move to a consolidated email solution for all agencies, in order to drive operational efficiencies, reduces support costs and ensures a secure environment. The conceptual solution is based on implementing Microsoft's Exchange Enterprise Edition, running on Microsoft Windows Server. We would create an email domain or expand upon the current infrastructure, using any existing Exchange services already defined and used by VITA. The primary benefit is a low cost unified messaging system.

The consolidation strategy consists of installing new hardware at the Consolidated Operations Center and creating/connecting to an Active Directory domain. This would be followed by installing Exchange server and connecting to any existing Exchange organization, then migrating any current Exchange users to the new domain. Northrop Grumman would work with VITA to determine migration strategies for the remaining email users.

2.A.13 Electronic Government, Business Transformations, and Process Management

For both State and local government services, the Commonwealth is a recognized leader in providing electronic government services. Citizens can perform many services through the Internet that save taxpayers time and money. Citizens will eventually access all government services virtually, as the inherent cost savings make it inevitable.

While the full impact of citizen access to government is still in the future, building a managed partnership with Northrop Grumman will aid the Commonwealth in realizing the value of interdepartmental linkages as the means for an increase in efficiency. Northrop Grumman has the expertise, experience, and rigorous methodology that will enable the Commonwealth to facilitate the kind of services that tax payers will demand in the years ahead.

Northrop Grumman understands that government is different than the private sector. The most obvious difference is that the Commonwealth government exists to fulfill a mission, not make a profit. Government must positively affect the lives of the citizens it serves. The operational realities of VITA are also different. For example, VITA must charge all of its customers the same fees for the same services, and it must accommodate servicing customers that would be considered unprofitable in commercial environments.

Because VITA could be described as a regulated utility, the success of any public-private partnership it may enter into needs commercial partners with rigorous implementation methodologies to do the work on time and within budget. Northrop Grumman has the experience that is demanded for the government

arena. As a true systems integrator with 45 years of public sector experience, Northrop Grumman offers the services for the entire lifecycle of VITA's transformational activities including planning, processes, methodologies, implementation, oversight and everything else to ensure the smooth delivery of information technology.

Northrop Grumman has vast expertise and past performance qualifications to work in partnership with VITA to provide trusted solutions that delivery real-time benefits of e-government and e-business including:

- Creating high-productivity solutions for core enterprise functions such as finance, human resources, and procurement
- Building architectures and applications to support unique mission and service requirements
- Streamlining supply chain and resource management
- Assuring high-loyalty constituent and customer relationships based 360-degree understandings of their needs

To reduce risk and successfully complete VITA's anticipated business reengineering and transformation processes, such as the possible installation of an enterprise-wide financial and personnel management solution, Northrop Grumman proposes to leverage our Decision Analysis and Resolution (DAR) process as part of the managed partnership with VITA. The DAR process provides a means to perform an evaluation of options in order to make the best choice. The process and procedure can be used for trading off design alternatives, make/buy decisions, and any other major decisions that may be encountered. The DAR process is conducted throughout the system life cycle whenever a selection must be made from among competing possibilities. The DAR is an 8-step process, including:

1. Determining the need for formal analysis
2. Selecting formal analysis process or tools
3. Analyze requirements
4. Determine evaluation criteria
5. Identify candidate solutions
6. Evaluate candidate solutions
7. Select the best choice
8. Document the analysis and resolution

The DAR process is successfully used throughout Northrop Grumman, including on programs that have received CMM Level 5 ratings. Recently, the DAR process was used to build a collection of customer-acclaimed trade studies of COTS applications that were completed as part of the DIMHRS program led by Northrop Grumman. DIMHRS is the Defense Integrated Military Human Resource System is an automated information system that will integrate and modernize all military personnel and pay data collection and processing capabilities in accordance with Department of Defense (DoD) requirements. DIMHRS will consolidate DoD field-level personnel and pay business processes into a standard single-point of entry system to collect, store, forward, and report personnel and pay data. DIMHRS will support military personnel and pay offices worldwide and incorporate Active, Reserve, and National Guard personnel in garrisoned and deployed forces. Limited support is also provided for retired personnel, family members, and designated civilians during military operations. DIMHRS is by far the largest

implementation of PeopleSoft Human Capital Management ever undertaken. It may be the largest integrated HR and Payroll System ever.

2.A.14 Independent Project Oversight to Support Major IT Investments

Along with accelerating the cost savings associated with the consolidation of VDOT's infrastructure, transitioning in 2004 provides closer alignment between VITA and VDOT in support of VDOT's IT programs. Based on the August 29 ITIB's Recommended Technology Investment Projects Report for the 2004-2006 Budget Biennium, VDOT has currently:

- $35.4 million of programs either identified for preliminary planning or recommended for planning
- $40.7 million of active projects

The legislature creating VITA tasked the CIO with establishing project oversight, but the agencies retained responsibility for applications and personnel critical to meeting the unique challenges of their agencies. Therefore, project oversight for VDOT programs, accounting for $35 million of planned spending over the next two years is the responsibility of the CIO, but the personnel with domain knowledge of VDOT operations is not part of VITA.

A review of the September 25 presentation to the ITIB regarding major technology investment projects over the next biennium provides an even broader scope of the challenge faced by VITA to establish project oversight. In total, VITA is responsible for establishing successful project oversight for 112 major IT projects totaling more than $438 million. While funding for these program is provided through several sources, the single largest funding source is General Funds, funding 41 programs at $118 million.

This separation of project oversight responsibility and domain specific knowledge increases the inherent risk of successfully completing major technology projects. After consolidation of the underlying IT architecture, the long-term benefits and required cost savings of VITA is derived from the successful implementation of technology in support of agency operations. This is the process of transforming agencies through innovative uses of information technology to better serve the constituents of Virginia. These process transformations will involve many industry partners, some long-time "trusted" partners and some organizations new to the Agencies and VITA. By working in partnership with VITA, Northrop Grumman proposes to develop an independent project oversight and assurance program, based on industry standards and best practices, to reduce IT spending and increase the success rate of major IT program implementations.

Northrop Grumman is the acknowledged national leader in independent verification and validation (IV&V), a disciplined set of methods and procedures to ensure quality is built into every phase of the system development life cycle. Northrop Grumman pioneered the field of software IV&V, beginning with Northrop Grumman's selection, in 1961, as the first Federal Government IV&V contractor. Since then, Northrop Grumman has applied IV&V-like methodologies to many diverse systems with exacting and multi-faceted requirements for federal and state customers. We maintain an active, leadership role in the full spectrum of software development, systems engineering, program monitoring and evaluation, software quality, and process improvement standards. This is reflected in our active membership in the Software Productivity Consortium and the Software Program Manager's Network; and, our role as a leader in IEEE and international software standards authoring and authoring assistance. In addition to leading role in industry, Northrop Grumman is internationally recognized for our internal quality management programs.

Within Northrop Grumman, five IT sector organizations have been evaluated against the Capability Maturity Model for Software (SW-CMM) or CMM Integration (CMMI) and each organization achieved a

rating of at least Level 3. A Northrop Grumman IT business unit became the second organization in the United States to achieve the highest possible rating, Level 5, against the CMMI. In addition to CMMI, Northrop Grumman has an ISO 9001:2000 registered quality management system. Northrop Grumman's commitment to quality has resulted in top-level CMM and ISO certifications. The quality organizational structures, policies, procedures and guidelines in place allow us to operate at advanced levels of process maturity.

Partnering to implement independent project oversight and assurance will result in a strategic program that can be tailored to meet the specifications of each major technology project. It allows VITA supported agencies the flexibility to select their technology partners to complete technology projects while providing structured oversight management to reduce risk and increase the probability of success.

This model has proven its success in the Commonwealth. Currently, Northrop Grumman provides independent project oversight and assurance services to the Department of Tax on the Partnership Project led by AMS. Northrop Grumman performs independent oversight services, which are provided independently of the TAX development organization through TAX Internal Audit. Northrop Grumman reviews deliverables and assesses methodologies to ensure that the Commonwealth receives complete, quality products from AMS in meeting the Department's requirements. Northrop Grumman performs assessments and makes recommendations on all aspects of the Partnership Project, identifies risks and risk mitigation strategies, and provides information to the Department and the project on best practices and industry standards. The assessments and recommendations are provided through formal deliverable reports that are presented to and reviewed with Partnership Project senior management.

Building an independent project oversight and assurance program with Northrop Grumman provides the Commonwealth with several benefits:

- Access to industry best practices in program oversight activities
- Independence to agencies select industry partners for agency programs
- Reduction in defects and cost of software development programs
- Better, more complete, and more accurate program documentation

2.B Virginia Strategic Goals for Technology

Provide information about how the project is aligned with Virginia's strategic goals for technology.

As a Tier-1 IT systems integrator, Northrop Grumman will aid the Commonwealth in facing its issues and achieving its goals for IT. We have a strong technical background, certified processes, and an unmatched local talent pool of technology professionals. These resources can assist the Commonwealth in providing more effective services, reducing redundancy, and lowering costs. Our objective is to develop a public-private partnership that provides the Commonwealth with comprehensive business and process solutions that address the long term objectives identified in the April 7 *Draft VITA Business Plan* and define and implement appropriate levels of service and availability in order to fully realize the benefits of consolidation, including an increased ability to:

- Support citizen-centric government
- Promote interoperability, cost- and resource-sharing, and IT centers of excellence
- Develop partnerships and promote standardization
- Implement effective cost controls

- Leverage services and infrastructure
- Cultivate greater alignment, integration, and extensibility

To reach these goals, there must be a commitment to successful execution. There is no company more qualified in this arena than Northrop Grumman. We provide these services at the highest levels of government, supporting many precious resources of the United States. Our strong U.S. Government technology services, as well as our experiences with other states such as Texas, California, Florida, Montana, Kentucky and others, provides the Commonwealth a strong foundation for success. These experiences will prove valuable when executing the Commonwealth IT initiatives through:

- ☑ Prioritizing targets of opportunity and developing the business case
- ☑ Consolidating technologies into one or more IT service centers
- ☑ Completing the Commonwealth's enterprise architecture
- ☑ Implementing enterprise-wide applications
- ☑ Deploying infrastructure that supports common utilities
- ☑ Establishing service level and availability standards for consolidated systems
- ☑ Establishing methods for measuring user satisfaction
- ☑ Establishing standard technology products and services

Along with our experience in supporting government and commercial clients, Northrop Grumman has developed vast knowledge of effective organizational consolidation through our own growth over the past nine years. Having successfully transformed our internal technology services through consolidation and standardization, information security, and administrative system management, we provide unique insight to the Commonwealth as Virginia begins its own IT transformation.

Comparable Challenge Faced by Northrop Grumman

Today's Northrop Grumman Corporation is the result of the successful integration of 18 different companies including Grumman Aircraft, Westinghouse Radio Division, Logicon, Comptek, FedData Corporation, Sterling Federal, Litton Industries, Newport News Shipbuilding, and TRW. Each acquisition presented different IT platforms, processes, and operating procedures. For Northrop Grumman to succeed, it was imperative to consolidate the myriad of IT infrastructures and provide centralized and standardized IT services in a secure manner.

Like the Commonwealth, Northrop Grumman relies on IT and its infrastructure to deliver services, share information, and perform the majority of business functions. Nearly every employee relies on IT.

Approach to Meeting the Challenge

For Northrop Grumman to look and act like one organization, specific IT integration objectives were established, prioritized, and addressed.

- Provide quick, secure access to computing resources from anywhere, anytime
- Provide one standard network protocol, calendar, messaging system and desktop image
- Collaborate effortlessly

- Provide a common, consistent user interface

Northrop Grumman's strategic processes have been rewarded in the marketplace and hailed in the press, as evidenced in our distinction as the "2002 Company of the Year" by *Forbes Magazine*.

Results

Northrop Grumman's internal IT integration process gained us recognition by *CIO Magazine* as one of the "Top 100" companies in 2002 for impressive progress in enterprise integration. General Motors Vice Chairman, Bob Lutz further recognizes our expertise in a 2002 *Fortune* article saying, "They're better at it (integrating and managing acquisitions) than anyone I've seen in the world. Northrop has well-trained integration teams, guidelines and processes that are 'laid out like a battle plan'."

- ☑ Consolidated over 30 data centers in last 8 years, achieving savings in excess of $100M
- ☑ Consolidated dozens of call centers to 1
- ☑ Evolved 8 different messaging systems to 1 (MS Exchange)
- ☑ Developed a single desktop common operating environment
- ☑ Implemented a global Wide Area Network, transforming hundreds of individually operated segments into one Global (IPWAN) network
- ☑ Bullet proofed our Internet access by collapsing over 50 marginally protected points of presence to 3 very secure, redundant 'border crossings'

After our first major mergers and acquisitions, we needed to strengthen our electronic messaging capability. We had eight separate systems, no integration points and no documented metrics. We chose MS Exchange as our standard and designed and implemented a world-class enterprise messaging system. We migrated 34,000 accounts in the first year and a half. We continue to evolve the environment by:

- Hardening the environment with robust virus scanning, minimizing entry points and locking down message transfer size
- Improving agility, with secure dial-up and high-speed access, encrypted, real time wireless access with worldwide Blackberry services for over 3,000 users

We continue to expand. We now have 105,000 accounts including the recent addition of over 20,000 TRW accounts in early 2003. Our massaging transformation won national acclaim with COMDEX awards for "Big Dog/Large Corporate Deployment" and Microsoft's Pathfinder award for real time exchange collaboration using NetMeeting.

The remarkable evolution of Northrop Grumman can be attributed to a rigorous and systematic approach to acquisition integration that stresses interoperability and addresses cultural, technical and business systems integration.

Our experience and understanding in consolidating IT resources through our personal evolution and from the services we provide across the globe to the largest government and commercial clients benefits the Commonwealth by providing proven methodologies and processes. We provide a "been there, done that" approach to the Commonwealth.

2.C Public Entity Work

Identify and fully describe any work to be performed by the public entity.

Northrop Grumman expects the active cooperation of VITA and its Agencies when implementing this program.

2.D Permits

Include a list of all federal, state and local permits, and approvals required for the project and a schedule for obtaining such permits and approvals.

This will be developed for the detailed phase and submitted when a better understanding of the site location and requirements are determined, as well as review and approval times with the County and appropriate agencies.

2.E Adverse Impacts

Identify any anticipated adverse social, economic and environmental impacts of the project. Specify the strategies or actions to mitigate known impacts of the project. Specify the strategies or actions to mitigate known impacts of the project. Indicate if an environmental and archaeological assessment has been completed.

The project is not expected to have adverse effects socially, economically, or environmentally. Northrop Grumman, with extensive experience in executing such projects, will ensure that all steps possible are taken to avoid negative social, economic, or environmental impact as a result of this project.

Environmental Assessment. Until a construction site is selected by VITA, the environmental impacts cannot be analyzed. However once a site is selected, the site will be developed to conform to all state and local environmental regulations.

Archaeological Assessment. Until a construction site is selected by VITA, the archaeological assessment cannot be completed. However once a site is selected, we will assist VITA in determining if the selected site has any archaeological significance. If during construction items of archaeological significance are suspected, the proper state agencies will be notified and procedures that are governed by law will be followed.

2.F Positive Impacts

Identify the projected positive social, economic and environmental impacts of the project.

See Section 4 for details concerning this project's positive impacts.

2.G Proposed Schedule

Identify the proposed schedule for the work on the project, including the estimated time for completion.

Northrop Grumman's solution provides a phased approach to partnership, building on successful programs, and leveraging multiple partnership models to best match the needs of the Commonwealth. A phased

approach to creating a partnership between Northrop Grumman and the Commonwealth is at the core of our solution.

The combination of our successful internal transformation and those of our valued government partners highlight the critical need to match program characteristics based on specific needs at any point on a evolutionary process. Phasing the solution to match the IT processes and tasks undertaken in the Commonwealth allows us to build a balanced partnership in support of VITA's goals and objectives. Our goal is not to supplant the efforts of VITA, but to leverage our expertise to reduce risk and provide a smooth transition to more coordinated technology services throughout the Executive agencies of the Commonwealth.

Exhibit 2-17 includes the potential schedule published April 7 *Draft VITA Business Plan* for achieving the transformation activities anticipated for implementation through public-private partnerships.

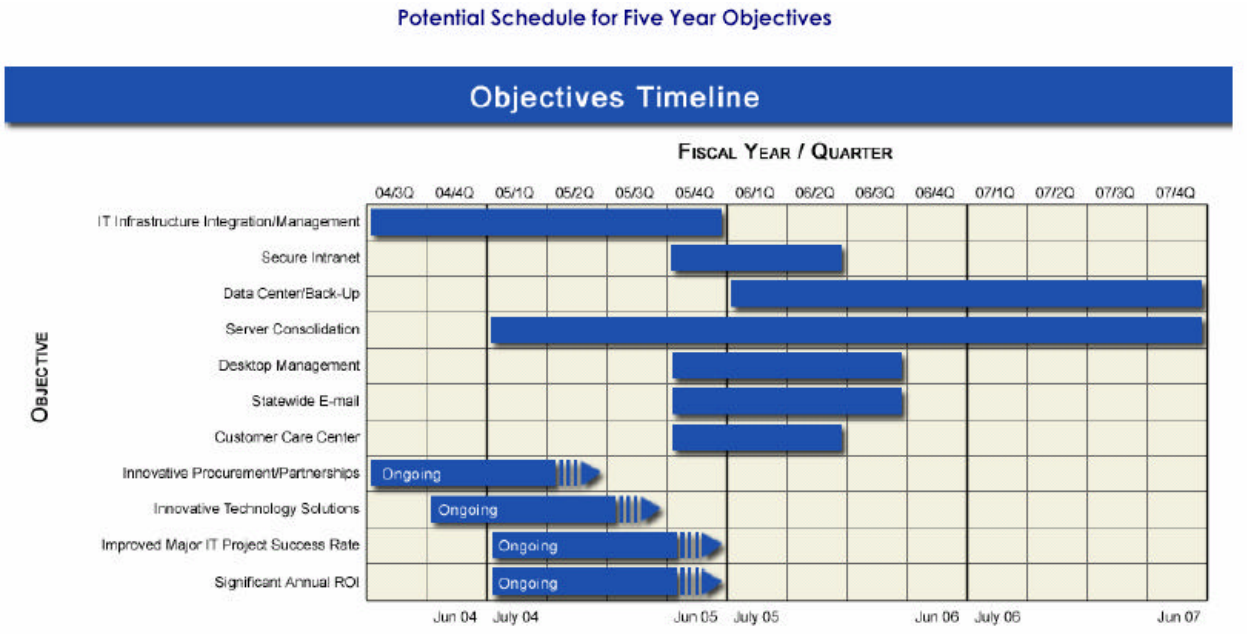

Exhibit 2-17: Potential schedule for implementing VITA's 5-year objectives

This conceptual proposal provides a comprehensive approach to delivering the five-year objectives of VITA. It is our intention to implement the objectives, as briefly identified in this proposal, within the identified 2008 timeframe.

To ensure success of each objective, Northrop Grumman proposes to utilize our industry best-practice project planning and scheduling methodology. This scheduling methodology has been proven effective in the acquisitions highlighted in **Exhibit 2-18** that have transformed Northrop Grumman from $6.7B to a $25B organization in just 8 years, and resulted in Northrop Grumman being named "2002 Company of the Year" by *Forbes Magazine*.

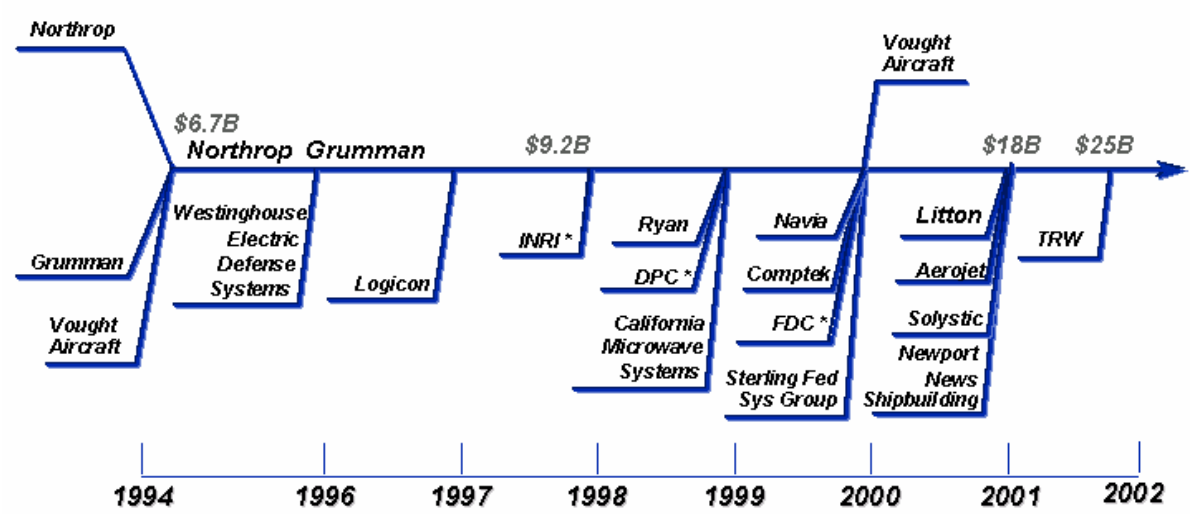

Exhibit 2-18: Major acquisitions of Northrop Grumman since 1994

The scheduling process used for corporate acquisitions is uniquely applicable to the activities expected of VITA. The process includes a three-phased approach that begins with due diligence and ends with full IT and business process integration and reengineering to reposition IT services in the Commonwealth to support the future needs of VITA customers and the citizens of Virginia.

2.H Contingency Plans

Identify contingency plans for addressing public needs in the event that all or some of the project is not completed according to projected schedule.

Supporting partnerships of the scope envisioned by VITA requires sound management and operational procedures. While Northrop Grumman is confident the proposed managed partnership will succeed, we realize the need for sound contingency planning. For relationships encompassing the scope of services conceptualized by this proposal, Northrop Grumman commonly develops detailed disentanglement plans should the need arise. The goal of the disentanglement planning is to build the transitional phases required to dissolve the managed partnership.

Northrop Grumman will work with VITA and the Commonwealth to develop the specific obligations of the disentanglement plan. Components of the plan will include:

- Full cooperation from Northrop Grumman, with guarantees of no adverse impact on Commonwealth operations
- Transfer of license to proprietary technology, assets, leases, and other contracts
- Provisioning of data and documentation

2.I Timely Completion

Propose allocation of risk and liability for work completed beyond the agreement's completion date, and assurances for timely completion of the project.

After the detailed proposal phase has been completed, a document detailing deliverables, program completion date, and functional test requirements will be prepared, which will then be agreed to and signed

by all parties. Northrop Grumman has minimized the Commonwealth's risk, and is assuming a significant amount of risk on this project, as further described in Section 3.

2.J Assumptions Related to Ownership and Use

State assumptions related to ownership, legal liability, law enforcement and operation of the project and the existence of any restrictions on the Commonwealth's use of the project.

Ownership and liabilities for the services and solutions provided will be negotiated with VITA. It is anticipated that government and industry-standard ownership and use parameters will be leveraged.

2.K Phases Openings

Provide information relative to phased or partial openings of the proposed project prior to completion of the entire work.

This requirement is not applicable to this PPEA proposal.

3.0 Project Financing

3.A Financing

Proposal must include sufficient financial information which evidences the proposer's financial stability and an ability to provide financing to support the project.

Northrop Grumman is a publicly held, $26 billion global enterprise, with over 120,000 employees and operations in all 50 states and 25 countries. To further testify to our financial stability, reference the Northrop Grumman Corporation 2003 Annual Report in Appendix A.

3.A.1 Preliminary Estimate and Estimating Methodology

Provide a preliminary estimate and estimating methodology of the cost of the work by phase, segment or both.

Northrop Grumman intends to build a managed partnership with the Commonwealth that provides VITA the ability to achieve the stated 5-year objectives as outlined in the April 7 Draft VITA Business Plan. The comprehensive solutions offered through this partnership deliver innovative technology and infrastructure solutions that deliver measurable business value and services to the citizens of Virginia and the customers of state government.

Item	Recurring Virginia Cost Estimate ($M)	Recurring Northrop Grumman Illustrative Price Estimate with Value Added Services
Data Center • Mainframe / Midrange • Servers • Personnel	**$43.5** • $5.1 • $16.4 • $22.0	• Operation of modern consolidated data center • Operation of backup data center site • Operation of comprehensive disaster recovery services
Distributed Computing • Desktops • Peripherals • Network Devices • Help Desks • Personnel	**$127.8** • $36.5 • $9.0 • $3.7 • $3.6 • $75.0	• 3-year technology refresh for all distributed components • Operation of enterprise wide help desk/customer support center • Full asset management • Operation of network operations management center
Total	**$171,287,000**	**$132,500,000**

The recurring cost estimate amounts are based on review and analysis of published components and costs, including those listed in:

- The Global Digital Economy and the Bold Dominion, Commonwealth of The Virginia Strategic Plan for Technology 2002-2006
- VITA Financial Overview presentation to the Information Technology Investment Board, delivered October 15, 2003
- VITA Final Operating Plan
- Recommended Information Technology Investment Projects for the 2004-2006 Biennium, revised September 9, 2003

Additional Illustrative Savings based on the information mentioned above:

- VITA agencies have a total of 88,000 SF raised floor, including 50,000 SF in non-Virginia owned facilities. Assuming a market rate of $30 per square foot of raised floor, consolidation of the 50,000 SF results in a recurring yearly cost savings of $18,000,000.
- Reduction or elimination of funding requests by the Secretary of Technology as outlined in the Report of the Information Technology Investment Board to the Governor and General Assembly of Virginia on *Recommended Information Technology Investment Projects for the 2004-2006 Biennium*, including:
    - $10,000,000 for the Consolidated Backup Center
    - $12,000,000 for the Consolidated Richmond Data Center
    - $24,306,000 for the E-mail Consolidation
    - $1,000,000 for the Server Consolidation

Capital expenditures for these programs are eliminated, as each of these items are components of the proposed public-private partnership, and are separate from the illustrated pricing above. The actual costs would be developed in combination with VITA through the implementation of the total program.

Although the VITA has a comprehensive agreement with MCI through the COVANET contract, Northrop Grumman expects the managed partnership to save the Commonwealth 10-15 percent on recurring network and communications costs. These savings can be realized through:

- Audit and management of Commonwealth communications contracts and invoices by leveraging Northrop Grumman's TFMAS system. Service fees for the implementation and operation of the TFMAS solution would be recovered through a percentage of cost savings realized by the Commonwealth.
- Consolidation to multiservice networks

The reengineering and long-term support of business systems, including enterprise application initiatives, unified email services, and electronic government solutions, requires the integration of multiple COTS technologies. Historically, the implementation of similar solutions in both public and private industry has returned mixed results. Northrop Grumman's structured decision analysis and resolution (DAR) process will best position the Commonwealth for success, measured in reduced costs and increased service to VITA's customers and Virginia citizens. By approaching these services with a structured, proven process, Northrop Grumman estimates savings of 30 percent.

3.B Financing Plan

Submit a plan for the development, financing and operation of the project showing the anticipated schedule on which funds will be required. Describe the anticipated costs of and proposed sources and uses for such funds. Include any supporting due diligence studies, analyses, or reports. The financial plan for the proposed project must contain enough detail, including cost benefit and tax analysis studies, so that an analysis will reveal whether the proposed financing is feasible.

This proposed managed partnership is offered as a gain-sharing program, with Northrop Grumman and VITA sharing in the risks and rewards of the partnership. The programs implemented through this long-term partnership may include many different funding methods, including sharing in cost savings, elimination of capital expenditures through structured payment programs, innovative financing, transaction fees, and cost avoidance.

3.B.1 Financing the Construction Phase

Northrop Grumman has reviewed the study conducted in 2002 on behalf of the Virginia Department of Information Technology and Virginia Bio-Technology Research Park (VBTRP) by McKinney and Company that provides a conceptual analysis for building and locating a centralized data center to support operations and management staff within the VBTRP. The seven year-old Park is only one-third developed in downtown Richmond. Any construction services to develop the new Center would be managed by the VBTRP. Northrop Grumman does not intend to subcontract directly with a construction firm to support this proposal. The VBTRP Authority has the capability to issue bonds to fund the majority of construction, substantial completion, and move in to this new facility without risk to the Commonwealth. Northrop Grumman would lease this space from the Bio-Technology Park and simply leaseback to the Commonwealth for the space it occupies.

Based on the conceptual analysis completed by McKinney and Company, the total cost for construction and move in is approximately $53 million. The cost model was based on information provided by VITA (then DIT) and historical cost data from similar projects in the Richmond market. Northrop Grumman expects to make adjustments to the cost model following discussion with the Commonwealth and after more detail is known. A copy of the conceptual analysis can be made available at the request of the Commonwealth. The analysis includes a preliminary site layout, technical component specifications, existing site photographs, and a conceptual elevation diagram.

3.B.2 Construction Phase Funding Schedule

The conceptual analysis by McKinney and Company includes construction duration of 104 weeks based on construction of a 196,000 square foot facility. Based on the changes in information technology since the creation of the study, Northrop Grumman anticipates working with McKinney and Company, VITA, and the VBTRP to update the study to reflect the most appropriate facility requirements. Once a complete analysis is conducted, we would establish a complete funding schedule using the VBTRP Authority to fund the program.

3.B.3 Financing Packages

Northrop Grumman intends to finance components of the managed partnership by leveraging appropriate business incentives available from both regional locations and through the Commonwealth. Incentives that are under review include:

Local Incentives

Fixed asset financing

- Building construction
- Equipment
- Terms – interest rates below prime, deferred payments

Reduced land prices

Enterprise zone incentives

- Real property tax grants
- Building permit waiver

Local economic development offices to support fast tracking for projects

State Incentives

Financing programs

- Governor's opportunity fund
- Virginia Economic Development Revolving Loan Fund

Enterprise zone incentives

- General tax credit
- Refundable real property investment tax credit
- Job grants

Major business facility job tax credit

Sales and use tax exemptions

Property tax incentives

Workforce services

- Customized recruiting and training assistance

Tobacco indemnification and community revitalization funds

3.B.4 Financing Post Implementation Operation of the Project

After facilities consolidation and transition of all agencies are completed, it is anticipated that the cost of the ongoing relationship would be funded out of the operating budgets of VITA and its agencies.

3.C Assumptions

Include a list and discussion of assumptions underlying all major elements of the plan.

Assumption	Responsibility	
	Northrop Grumman	Commonwealth
General		
Electronic Software Distribution is currently in place		X
Up-front, Out-of-pocket, and Transition costs	X	
Data Center (Mainframe, Midrange, Servers)		
Data center environment will be supported 24x7x365	X	
Production documentation and schedules are up to date		X
Licensing is in place for all computing platforms		X
Maintenance is current on H/W, S/W, Network & facilities		X

Assumption	Responsibility	
	Northrop Grumman	Commonwealth
Licensed to provide remote systems administration and security	X	
Backup and restore software is in place for all computing platforms		X
Server consolidations will be scheduled with 20% Yr 1, 50% Yr 2, 30% Yr 3	X	
Mainframe Hardware/Software		X
Network		
All Commonwealth offices have LAN and WAN connectivity		X
LAN support coverage for 132 sites with 2 LAN service calls per week at each site.	X	
LAN support will be provided via a Network Operations Center on a 24X7X365 basis	X	
WAN service will be provided by a Carrier		X
LAN cabling support will be provided by a subcontractor on a project by project basis	X	
Cisco Secure ACS licenses are in place		X
Network monitoring license are in place	X	
Voice communications will be supported by the Commonwealth		X
Network to support data center	X	X
Security		
Antivirus software is installed and up to date on all servers and desktops		X
Firewalls are currently in place		X
Disaster Recovery		
Business resumption plans are in place and current		X
Mainframe Disaster Recovery service contract is in place		X
Enterprise Desktop Services		
A 3-year refresh cycle will be implemented	X	
Standard hardware and software configurations will be agreed on	X	X
Disposal of surplus equipment will be responsibility of the Commonwealth		X
Support will be provided on 12 hour per day, 5 day per week basis	X	
Facilities		
A facility for the consolidated data center with redundant UPS, Generator and cooling, such as Bio-tech park facility, will be provided	X	
Space exists in the Richmond data center to start server consolidation		X
A secondary data center will be located at the Newport News VASCIC facility	X	X
All facilities will be provided by the Commonwealth		X
Facilities exist in Richmond and Roanoke for Help Desk Level 1 and Level 2 support		X

Assumption	Responsibility	
	Northrop Grumman	Commonwealth
Call Center		
Support will be for Windows, Office, Novell and COTS	X	
Support will be for a common operating environment	X	X
Support will be for custom applications		X
Altiris licensing for remote desktop takeover and asset tracking	X	
Call volume will be 1 call/desktop/month	X	X
Support will be provided on a 24 hour, 7 day per week basis		
The Problem management system will be Siebel	X	
The Knowledge management system will be Kanisa	X	
Program Management (Managed Services)		
Program Management office will be co-located in with the VITA CIO' office	X	X

3.D Risks

Identify the proposed risk factors and methods for dealing with these factors.

As noted in Section 2.A.2.4–Implementation Risk and Risk Mitigation, Northrop Grumman believes on e of the key factors to a successful implementation of this partnership is the risk and management process. Some of the risks and mitigation approaches are highlighted as follows.

Risk Description	Unmitigated Probability • Near Certain • Probable • Possible • Improbable	Unmitigated Impact • Catastrophic • Critical • Marginal • Negligible	Risk Exposure • Near Certain • Probable • Possible • Improbable	Mitigation Approaches	Mitigated Exposure
Transition to new contract and contractor may result in loss of key skills and knowledge	Probable	Critical	Possible	Reduce probability to **Possible** and impact to **Marginal** by recruiting key knowledgeable staff to stay, and obtaining debriefs from key staff are leaving	Low
Limited knowledge of VITA Data Center details may impact ability to forecast cost and performance	Probable	Marginal	Moderate	Reduce probability to **Possible** and impact to **Marginal**. Develop detail due diligence plan and work with VITA to ensure all areas of exposure are explored.	Low
Desktop Services performance may be negatively affected by other Commonwealth contractors	Probable	Critical	Possible	Reduce probability to **Possible**. Develop working relationships with Commonwealth's help, and negotiate MOUs or other inter-contract agreements.	Low

Risk Description	Unmitigated Probability • Near Certain • Probable • Possible • Improbable	Unmitigated Impact • Catastrophic • Critical • Marginal • Negligible	Risk Exposure • Near Certain • Probable • Possible • Improbable	Mitigation Approaches	Mitigated Exposure
Existing/planned support toolset may not support meeting SLAs as required	Probable	Critical	High	Detailed review of tools during transition period. Timely identification of proven tools from other Seat Management contracts, if needed.	Low
Delay of any new support tool installation/ implementation may affect our ability to meet SLAs	Probable	Critical	High	Work closely with the Commonwealth to develop prioritization of support tool installation/ implementation projects, so that the key SLAs are met quickly and so that agreement can be reached regarding timing for activation of additional SLAs	Low

3.E Other Resources

Identify any local, state or federal resources that the proposer contemplates requesting for the project. Describe the total commitment, if any, expected from the governmental sources and the timing of any anticipated commitment.

Northrop Grumman expects the active cooperation of VITA and its Agencies when implementing this program. There are no other local, state or federal resources expected or required at this point.

4.0 Project Benefit and Compatibility

4.A Project Beneficiaries

Identify who will benefit from the project, how they will benefit and how the project will benefit the overall community, region, or state.

The principal beneficiaries of the Technology Passport Project are the Virginia Information Technologies Agency, Executive Branch agencies of the Commonwealth of Virginia and the citizens these agencies serve. We believe this project benefits all users of information technology by leveraging a unique way of doing business in the Commonwealth through proven industry best practices to achieve VITA's stated pillars of success:

- Excellence in service delivery
- People = Assets
- Success through partnerships
- Technology Solutions
- Transparency

Improving the technology infrastructure and operational processes through a public-private partnership with Northrop Grumman Team has numerous benefits. This program provides specific economic, effectiveness, and resource benefits to the Commonwealth:

- **Economics**
  - Taxpayer savings expected to exceed 25% over 10 years
  - Reduced facilities cost
  - Reduced IT hardware/software personnel cost
  - Reduced agency cost
  - Predictable ongoing IT expense
  - Technology upgrades on scheduled basis
- **Effectiveness**
  - Increased service levels and performance
  - Process improvements via best practices
  - Risk management/mitigation for large IT programs
- **Resources**
  - Able to react faster in leveraging new technologies
  - Allow scarce government resources to focus on critical priorities

The Northrop Grumman Team has the expertise and capabilities to develop such a partnership to the Commonwealth of Virginia. Our Team includes companies who have significant experience in consolidating information technology infrastructure, providing industry-proven best practices, and working in tandem with state IT organizations to transform IT service levels for state government. By working together from the beginning, we will help VITA pioneer a 21st century model for information technology governance and operational excellence. This partnership will achieve VITA vision to provide significant

cost savings and provide outstanding service and technology solutions to support customers and address their business needs a more effective and innovative system. Through coordination of every aspect of the project, we can create efficiencies that benefit the entire Commonwealth of Virginia.

4.B Project Support

Identify any anticipated public support or opposition, as well as any anticipated government support or opposition for the project.

Northrop Grumman is proposing to create a partnership with VITA that will increase IT service levels, reduce IT costs, and increase technology investment in the Commonwealth. The previous public-partnership between the Commonwealth and Northrop Grumman to develop the Virginia Advanced Shipbuilding and Carrier Integration Center has proven successful in enhancing and promoting the quality and competitiveness of Virginia's shipbuilding industry and to promote the general welfare of Virginia citizens. The program leverages the support and uniting the efforts of twelve Virginia Universities and several industry partners including Lockheed Martin and Raytheon, as well as government members such as the Office of Naval Research, Naval Surface Warfare Center, Program Executive Office Aircraft Carriers and Navy Submarine activities. It is anticipated that the public-private partnership with VITA will garner similar support from local community and government leaders of Virginia.

To gain support of local communities and government leaders, Northrop Grumman has engaged many organizations in discussions regarding the strategic benefits and opportunities for economic growth the partnership provides. Based on these discussions, Northrop Grumman anticipates government and public support from many of the economic development and information technology structures of the Commonwealth, including:

- Virginia Bio-Technology Research Park
- Virginia Coalfields Economic Development Authority
- Scott County Economic Development Authority
- LENOWISCO Planning District Commission
- Wise County Economic Development Director
- Southwest Virginia Community Colleges
- Virginia Workforce Services
- Virginia Center for Innovative Technology
- Greater Richmond Technology Council
- Hampton Roads Technology Council
- Newport News Industrial Development Authority
- DPC Community Foundation

4.C Public Outreach

Explain the strategy and plans that will be carried out to involve and inform the general public, business community, and governmental agencies in areas affected by the project.

Any strategy or plan to inform the public and business community about the Northrop Grumman proposal will be done in cooperation with, and only at the direction of, the Secretary of Technology, the Commonwealth CIO, VITA, the ITIB, and local officials as appropriate. Our Team is eager to meet with the legislature, citizens and Commonwealth leaders so they have a better understanding of the benefits of this proposal. For example, our Team is willing to make presentations on the proposal at ITIB meeting and participate in public or governmental meetings to explain this effort.

Northrop Grumman intends to develop a comprehensive communications plan to support proactive communications through VITA with the Cabinet, General Assembly, agency heads, citizens, and other stakeholders. Implementing such communication plans is a common activity associated with our government services.

4.D Compatibility

Describe the compatibility of the project with local, regional, and state economic development efforts.

As previously indicated, we believe our proposal is completely in accord with goals of the Commonwealth of Virginia's Secretary of Technology, the Virginia Information Technologies Agency, the Information Technology Investment Board, and the Virginia Legislature as elaborated in the Virginia 2002-2006 Strategic Plan for Technology and authorizing legislation for the creation of VITA.

From a State economic development effort, we believe the plan is compatible because it provides a significant reduction in yearly IT expenditures required to support the executive branch agencies of the Commonwealth. These savings are provided without reducing the employment levels of IT professionals in the Commonwealth beyond voluntary attrition.

The Technology Passport program promotes the Governor's "One Virginia" vision by leveraging technology personnel and resources across various regions throughout the Commonwealth. This includes:

- Continuing the revitalization efforts in Richmond by constructing a new technically-advanced consolidated IT facility in combination with the Virginia Bio-Technology Research Park. This new facility will provide Virginia IT professionals with the advanced resources needed to effectively provide outstanding service and technology solutions for the Commonwealth.
- The use of the Herbert H. Bateman Virginia Advanced Shipbuilding and Carrier Integration Center, thereby increasing the number of high-paying IT jobs in the Tidewater region of Virginia, and continuing the revitalization efforts of downtown Newport News.
- The creation of a unified IT communications center in Southwest Virginia, helping to bridge the technology gap between Southwest Virginia and other regions of the Commonwealth. This proposal brings high-paying IT jobs and capital investment to the Southwest region.

In addition to enhancing economic development efforts, the Technology Passport program can be leveraged to enhance the educational programs throughout the Commonwealth. For example, Northrop Grumman has implemented an award-winning program for industry partnership with the Virginia Community College System. The primary objective of the partnership between Thomas Nelson Community College (TNCC) and Northrop Grumman was to further comprehensive workforce development in the Tidewater region and becoming the region's premier "corporate partner." Northrop Grumman spearheaded a regional partnership for manufacturing excellence with TNCC which:

- Developed state-of-the-art manufacturing curriculum for the Peninsula

- Developed a model cooperative education design program
- Produced marketing materials for manufacturing programs
- Helped TNCC to acquire a National Science Foundation manufacturing excellence grant
- Facilitated the design and equipping of a leading-edge manufacturing excellence center in the new Peninsula Workforce Development Center (PWDC)
- Developed middle school and high school competencies in math and sciences
- Facilitated the development of a manufacturing cluster as a part of the Peninsula Alliance for Economic Development and the Greater Peninsula Workforce Investment Board (WIB)
- Recently accepted the chair of the region's WIB

This program resulted in Northrop Grumman receiving the 2002 Business and Industry Partner of the Year award from the VCCS. It is one example how Northrop Grumman partners in localities and regions of the Commonwealth to increase economic development and provide educational excellence. As part of the Technology Passport program, we look forward to replicating the success of this program by working in combination with the Commonwealth to develop a curriculum, internship program, and other educational experiences to develop future technology professionals. We are committed to expanding our premier "corporate partner" role to all regions of the Commonwealth in support of technology and manufacturing programs.

4.E Community / Regional Benefits

Describe the compatibility with the local comprehensive plan, local infrastructure development plans, and any capital improvements budget or other government-spending plan.

The development of consolidated information technology systems and the capital infrastructure to support these systems will have many benefits for the Commonwealth. The construction of new facilities will have a stimulating impact on the economy in Virginia and the surrounding localities. A study conducted by the University of Washington several years ago concluded that for every $1 million spent on commercial construction activities, an additional $2.25 million of sales occurred and supported 30.8 jobs. Construction activities will also generate additional state and local revenues. By building and/or upgrading facilities in Richmond, Southwest Virginia, and Newport News, this program will provide benefits to multiple regions of the Commonwealth.

Further, by having employees trained on state-of-the-art technology, spin-off benefits to the community, by improving skills and knowledge of information technology systems, will accrue. A skilled and trained workforce is the top consideration of any site selection team.

By providing these benefits and reducing the yearly operating costs of VITA, the Technology Passport program supports VITA's objectives of reducing costs and increasing services while enhancing the IT infrastructure and industry throughout multiple regions of the Commonwealth.