2.3 Management Practices and Procedures

The Northrop Grumman Team's management practices and procedures are designed to deliver high quality services at the best value to the Commonwealth. The management approach the Northrop Grumman Team will employ builds on our extensive relevant project management experience, tailored to the needs of the Commonwealth. We will use best practices from within Northrop Grumman, as well as those from our partners. At the core of our management approach is our commitment to provide total user satisfaction. Satisfaction by VITA and the agencies it serves is the outcome of time-tested processes that include many factors, such as:

➢ Accurate recognition of all project technical realities and human factors

➢ Formation of a team with best-of-class qualifications

➢ A comprehensive understanding of task requirements

➢ Comprehensive, ongoing communications with VITA, supported agencies, and employees

➢ Implementation of time-proven project management process that result in project success

➢ Assignment of well-qualified management and program leaders

The Northrop Grumman Team's management practices and procedures are guided by our core values—values that we live by every day. These values apply directly to the partnership between Northrop Grumman and VITA as we envision it to be. Putting these values into practice creates long-term benefits for VITA, supported agencies, employees, suppliers, and the communities we serve.

We take responsibility for QUALITY.

Our products and services will be "best in class" in terms of value received for dollars paid. The program will deliver excellence, strive for continuous improvement and respond vigorously to change. Each of us is responsible for the quality of whatever we do.

We deliver CUSTOMER SATISFACTION.

We are dedicated to satisfying VITA and supported agencies. We believe in respecting the Commonwealth as our customer, listening to requests and understanding expectations. We strive to exceed expectations in affordability, quality and on-time delivery.

We provide LEADERSHIP as a company and as individuals.

This partnership's leadership is founded on talented employees effectively applying advanced technology, innovative solutions and sound business management. We add more value at lower cost with faster response. We each lead through our competence, creativity and teamwork.

We act with INTEGRITY in all we do.

We are each personally accountable for the highest standards of behavior, including honesty and fairness, in all aspects of our work. We fulfill our commitments as responsible citizens and employees. We will consistently treat VITA and Commonwealth resources with the respect they deserve.

We value PEOPLE.

We respect and take pride in the significant contributions that come from the diversity of individuals and ideas. Our continued success requires that we provide the education and

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development needed to help people grow. We are committed to openness and trust in all relationships.

We regard our SUPPLIERS as essential Team members.

We owe suppliers the same type of respect that we show to the Commonwealth. Our suppliers deserve fair and equitable treatment, clear agreements and honest feedback on performance. We consider our suppliers' needs in conducting all aspects of business.

The sections that follow describe our management practices and procedures, including:

- 2.3.1   Relationship Management
- 2.3.2   Change/Release Management
- 2.3.3   Problem Management
- 2.3.4   Quality Management
- 2.3.5   Personnel Management
- 2.3.6   Performance Management
- 2.3.7   Security Management
- 2.3.8   Service Continuity Management
- 2.3.9   Project Management
- 2.3.10   Information Technology Infrastructure Library (ITIL)/Information Technology Service Management (ITSM)
- 2.3.11   Communications and Organizational Change Management

The first nine of these sections were described in the bid package. We have added the final two sections, because we believe they are important components to the success of the program:

- Section 2.3.10 presents best practices and methodologies for implementing infrastructure support using Information Technology Infrastructure Library (ITIL)/Information Technology Service Management (ITSM).
- Section 2.3.11 presents our approach to communications and organizational change management, which will increase stakeholder engagement and foster support for transition activities, resulting in improved service delivery and increased customer satisfaction.

2.3.1 Relationship Management

Instructions to Vendors: Describe how the Vendor organization will represent itself to Commonwealth from an overall viewpoint. Describe the internal process used to select an individual to be the primary interface to Commonwealth. Discuss treatment of account management, status reporting (hard copy and electronic), performance review meetings (at least monthly), contract management, audits, planning, setting priorities and handling service requests.

Our commitment to the IT Infrastructure PPEA is evidenced by the high caliber of our proposed staff, their credentials to provide unparalleled support to VITA, and proven access to our extensive corporate resources. Our plan transitions VITA to a service-based delivery model, and we have tailored our management approach to efficiently meet VITA's complex requirements. We thoroughly understand the work based on similar experiences, and since we have been there before, we can and will deliver on schedule, within budget, and with low risk.

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Relationship Commitment—A strong, realistic partnership is essential for VITA's success, and Northrop Grumman has made such a partnership a cornerstone to our approach. With this partnership, we empower all participants, supporters and suppliers to provide their best efforts. We have embedded partnership in our overall management philosophy to include a corporate commitment to VITA's success—a commitment that is underscored by a high level of engagement on the part of Northrop Grumman's senior management. Northrop Grumman IT President, Mr. Jim O'Neill, has publicly expressed the company's dedication to "build on our strong history with the Commonwealth of Virginia." He views the VITA IT Infrastructure PPEA as a model for public-private partnership and is very excited about the potential to bring the best technologies and best solutions at the most affordable price to our home state.

Staffing, Best Practices, and Resources—Mr. O'Neill has given this project unprecedented corporate support as a priority program, and entrusted this effort to the Commercial, State and Local Solutions (CSLS) strategic business unit, the unit within Northrop Grumman responsible for all State and Local government IT programs and projects. Mr. Hugh Taylor serves as President of CSLS and will be the Relationship Executive on this program. With the importance and complexity of this partnership, Mr. Taylor has assigned Northrop Grumman's most skilled and experienced staff to this program, and has provided them immediate access to key decision-makers and expert resources from across the corporation. All our proposed managers on this program are skilled in the application of company resources and best practices to serve VITA in an extremely complex management and technical environment. We are confident that our staff, best practices and resources, when applied in the Commonwealth environment, will achieve standards of performance that meet or exceed VITA's operational objectives.

Management Culture—Our approach implements forward-looking program management and an attitude that promotes team spirit and a culture of cooperation while focusing on all VITA program objectives and requirements. We recognize this program is more than a "run-and-maintain" scenario, and that dramatic changes will occur within VITA over the course of the program. The application of successful Northrop Grumman methodologies yields a management solution that aligns effectively to VITA's program objectives as summarized throughout this document. Our organizational structure provides a disciplined, quality approach to daily operations to assure we meet the service levels across all VITA supported locations and functions. Our proven internal processes and procedures will provide VITA with accurate, automated information for thorough and timely insight into all program operations.

2.3.1.1 Governance Structure

Partnering Through Defined Governance—To assist the Commonwealth and the Northrop Grumman Team in achieving their objectives, an effective governance model structure must be implemented to support the planning and delivery requirements of the Commonwealth's Chief Information Officer (CIO), VITA and the Executive Agencies. As defined by VITA, the Northrop Grumman Team will participate in the formation of a multi-level governance structure to maintain alignment, drive accountability, and ensure direction-setting and decision-making forums for the managed partnership. The Northrop Grumman Team's Program Management Office will serve as a conduit for information between the governance and delivery functions.

The governance model is designed to serve the strategic and operational levels of the partnership. The Secretary of Technology, Information Technology Investment Board (ITIB), and Commonwealth's CIO, as the overall parties responsible for IT Strategy within the

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Commonwealth of Virginia, will provide strategic direction with respect to the needs of customers and the citizens of Virginia. The partnership governance committees will develop the strategic and tactical plans to implement these directions. The Northrop Grumman Team will provide ongoing and transformational services to achieve the objectives of this partnership.

The Northrop Grumman Team and governance committee members will have clear roles and responsibilities designed to maintain accountability to the Commonwealth's CIO, ensure alignment with the Commonwealth's enterprise technology architecture, and deliver quality services to alliance customers while avoiding duplicative efforts.

The Governance Structure includes the following components, as shown in **Exhibit 2.3.1-1 (Redacted from Public Document – Proprietary and Confidential**).

The governance model structure provides a means by which VITA and the Northrop Grumman Team will ensure that the partnership contributes to the well-being of the Commonwealth and its customers, fosters innovation in service delivery and grows Virginia-based businesses, both small and large. As a partner, the Northrop Grumman Team will actively participate in the formation and continuous improvement of the governance structure to drive accountability, alignment, direction setting, and decision-making.

The Commonwealth's Strategy Committee has the overall responsibility for maintaining alignment between the Commonwealth's sourcing relationship and business strategy. It also provides strategic direction with respect to the needs of its state agency customers and the taxpayers of the Commonwealth of Virginia.

The governance model structure is built on a set of guiding principles that enable the partnership to meet VITA's vision "…to be a model service organization with entrepreneurial spirit:"

➢ The Strategy Committee will have strategic control with respect to the IT service areas. The Northrop Grumman Team will have operational control of those areas as defined in the contract.
➢ VITA functions will be managed through unified policy direction and execution to provide customer focus, market responsiveness and innovation.
➢ VITA capabilities will be continuously reviewed, improved and modified, within the scope of the program, to ensure customer focus, market relevance and acceptance across the enterprise.
➢ Customers will receive consistent and quality IT services through a single access point.

In accordance with the partnership model for this program, membership of the governance committees is defined to be a combination of VITA and Northrop Grumman Team management. The roles and responsibilities, as well as proposed membership in each Governance committee are discussed in detail in **Section 11.3.1 Relationship Management**. We will work closely with VITA to ensure the appropriate management and technical staffs are available across all governance committees, as they address various issues of strategy, relationship, transformation, and operational support.

Technology Advisory Panel

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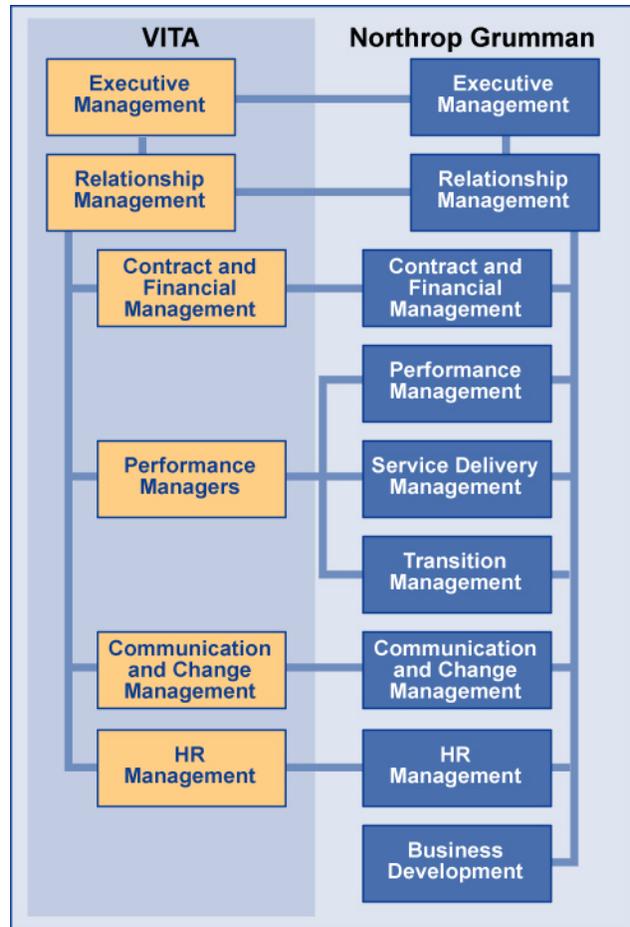## 2.3.1.2 Organizational Alignment

The Northrop Grumman Team understands VITA's organizational requirements, as described in the PPEA bid package, and proposes a program organization designed to align the organization for success and drive results. The organizational structure provides clear interfaces between VITA and Northrop Grumman Team personnel for direct dialogue and problem resolution, as well as a simple structure with clear lines of control to minimize misunderstanding and drive communication. **Exhibit 2.3.1-2** illustrates the primary relationships between VITA managers and the Northrop Grumman Team personnel.

Additionally, as discussed above, our organization supports participation of Northrop Grumman Team personnel on each of six governance committees to ensure appropriate management control, oversight and communications, as well as consistent cross-functional services across all program activities.

The Northrop Grumman Team will have clear roles and responsibilities designed to maintain accountability to the Commonwealth, ensure alignment with the Commonwealth's enterprise technology architecture and deliver quality IT services to customers while avoiding duplicate efforts.

VITA 321_r3

Exhibit 2.3.1-2 Northrop Grumman Team/VITA Manager's Interfaces
We have established clear points of communication between the program management organization and VITA.

2.3.1.3 Lifecycle Management

The Northrop Grumman Team recognizes that this is a unique program, requiring four distinct phases of support (start-up, current operations, transition, and post-transition), and that each phase has different goals and areas of emphasis. For example, during the Start-up Phase (Effective Date through Service Commencement Date), we will emphasize communication and employee transition activities. The separation of Transition and the Current Operations responsibilities (running concurrently from Service Commencement Date through Month 24) maintains focus on continued service delivery and customer service during transition. The main focus for each of the four phases of this program is shown in **Exhibit 2.3.1-3 (Redacted from Public Document – Proprietary and Confidential)**. To respond to the differing needs of the various phases and to manage the program effectively, we propose a simple yet flexible program organization. This approach will provide an effective framework for service delivery, development and management over the program lifecycle.

To address the relationship in the various phases, we developed an effective and lean organization to manage the program. While we will set up the entire organization at the conception of the program, its intensity and focus will follow the phases as described above. During the Start-up phase, Human Resources, Contracting, and Communications and Change management will have primary focus with significant resources applied to these areas. The focus of these teams will evolve in subsequent phases. As the program progresses, other teams' importance will increase and staff resources will be applied appropriately. An organization based on these principles will deliver the most flexible, effective and efficient services to VITA and, more importantly, to the taxpayers of the Commonwealth of Virginia. The organization structure for program management is shown in **Exhibit 2.3.1-4**. The Northrop Grumman Team's proposed program management establishes executive leadership with a single point of responsibility to VITA, and facilitates management oversight of all program activities.
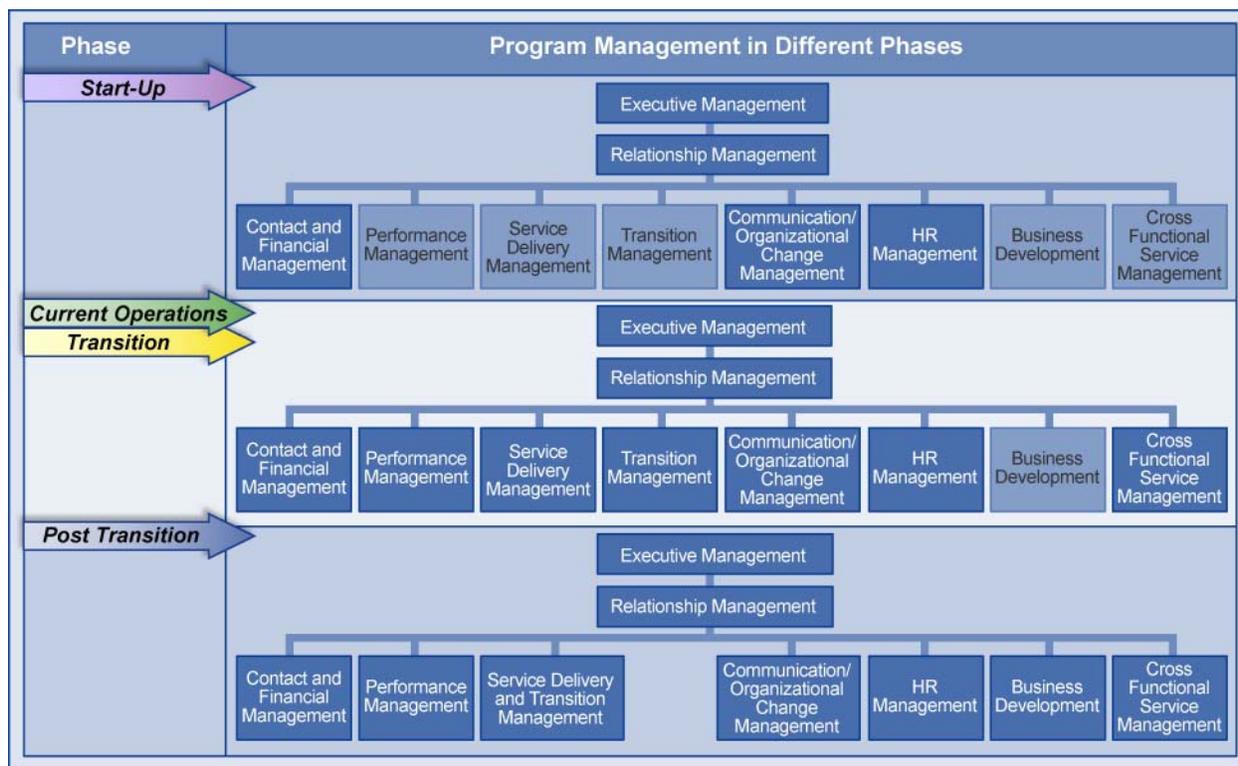
Exhibit 2.3.1-4 Program Management Structure Over the Life of the Program
Our program management includes Executive Leadership with a single point of responsibility.

This program management structure will ensure seamless account implementation, adherence to the statement of work and consistency in service delivery and quality. This organization is based on the following key factors:

➢ Strong relationship management
➢ Clear lines of accountability
➢ Sound business management
➢ Effective, timely and frequent internal and external communications and public relations
➢ Effective integration of cross-functional services
➢ High quality Service Delivery to VITA's Clients

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> A shared governance model structure

Relationship Management and Staffing are discussed further in **Section 5.0** and the Northrop Grumman Team's proposed organization chart is provided in **Section 5.2.1-2 (Redacted from Public Document – Proprietary and Confidential)**. Finally, **Section 11.3.1** presents a detailed discussion of Relationship Management including Governance, Day-to- Day Management and roles and responsibilities of each component of the organization.

2.3.1.4 Internal Process to Select Relationship Manager

Northrop Grumman's account management approach aligns the program at a very senior level, providing the Commonwealth's leadership with direct connections to our executive leadership, thereby providing access to our substantial technical and strategic planning resources. In selecting an individual to serve as the primary interface with the Commonwealth for this engagement, we sought a combination of leadership and management skills demonstrated in the state and local arena. We required an individual with a broad business background who has held significant management roles, profit and loss responsibility, with extensive customer relationship experience. We require strong management experience with proven success at delivering similar service levels, in charting new directions, and in enabling new technologies. Our proposed managers at these levels have been heavily involved in state and local efforts to implement business, technology and infrastructure management solutions.

Our proposed Relationship Manager, Mr. Joseph Fay, is our primary interface to the Commonwealth. To maximize the opportunity for success, this position includes responsibility for both business and operational management. The position also has decision-making authority for the contract, as well as operational management and oversight to ensure a customer-focused and effective management approach.

While Mr. Fay provides the primary interface to the Commonwealth, our Relationship Executive, Mr. Hugh Taylor, provides an important executive-level interface with the Commonwealth. Mr. Taylor will be responsible for sustaining our strategic relationship and partnership with the Commonwealth. As President of the CSLS business unit, he is responsible for delivering a wide range of business and technical solutions in the state and local marketplace, as well as our commercial technology alliances and managed services solutions. As an officer of the Northrop Grumman Corporation, Mr. Taylor has the experience to provide the necessary executive oversight and technology direction to enable implementation of the Commonwealth's strategic vision. Because of his position within Northrop Grumman, he also can successfully leverage the required resources for service delivery.

2.3.1.5 Status Reporting

Our approach to establishing a cooperative, collaborative partnership with VITA is founded on appropriate, well-defined communications interfaces for all aspects of account management, including planning, management and operations, and monitoring and reporting functions. We adhere to the quality management principle of timely communications, and provide regular status reporting of activities. The monthly status report will be the primary method of monitoring and reporting on project status and trends. Northrop Grumman will ensure that VITA receives sufficient detail and drill-down on the executive summary view (see **Performance Management**, discussed in **Section 2.3.6**) to ensure adequate performance monitoring and corrective action planning. During contract transition, our Relationship Manager will coordinate

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with the VITA Relationship Manager to create a baseline format for this monitoring and reporting tool.

To provide the earliest possible notification of potential service disruption or degradation, and recommend procedures to minimize the impact on the Commonwealth, we propose a secure Web portal dashboard facility that will provide immediate access to the most current performance, status and service availability information across the program. The VITA Services Portal (VSP) will also provide real time reporting on the health of the VITA environment. The VSP requires only simple browser software for access, and can be made available to VITA, Northrop Grumman, partner and third-party personnel, as well as end users approved by VITA.

2.3.1.6 Performance Review Meetings

On a monthly basis, our Relationship Manager will present to the VITA Relationship Manager an executive summary of performance. These reviews will formally communicate status, specific issues, recommended solutions and a view of planned activities. They will also provide visibility and a venue for executive management interaction with program staff. In this forum, our Relationship Manager will work with the VITA Relationship Manager to eliminate major program issues or roadblocks to success and will verify project prioritization for significant program activities. We also will present and discuss executive summary program performance metrics at these meetings. This executive summary review is a derivative of similar monthly program reports that Northrop Grumman executives use to review key program parameters across our portfolio of IT managed services engagements. We will provide the executive summary electronically and in hard copy to designated VITA staff members.

2.3.1.7 Contract Management and Audits

Our Business Manager will bring formal procedures and best practices for monitoring performance. The Business Manager is responsible for all business support functions, such as contract management, planning and budget control, procurement, billing, accounts receivable, and accounts payable. This manager works closely with the VITA business and contract managers to establish program milestones, and monitor and track performance. Specific metrics will vary based on program requirements; however, they will always include performance to schedule, delivery to schedule, and customer satisfaction ratings.

Project performance metrics are defined and agreed to by VITA at project initiation, and include the exact metrics that will be used to evaluate the levels of service to be provided. We will define and refine these metrics and the measurement methods transition.

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2.3.2 Change/Release Management

Instructions to Vendors: Describe the process for ensuring proper coordination and control of all changes/releases, policies and procedures in order to minimize service interruption or degradation. In addition, the proposal should describe how the Vendor's change/release management process will interface with Commonwealth application development processes and sub-contractors. Specifically how these parties will leverage the same tools sets to facilitate process integration. In addition, describe your proposed approach to for establishing and utilizing a test lab.

Vendor should also demonstrate ability and experience with addressing Commonwealth regulatory requirements (e.g., Federal mandates, HIPAA).

Change management and release management processes and activities are interrelated and complementary. Our implementation of both change and release management complies with the Information Technology Infrastructure Library (ITIL)/Information Technology Services Management (ITSM) framework, as described in Section 2.3.10.

The Northrop Grumman Team's approach to change management uses standard methods and procedures for handling of all production environment changes in order to minimize the impact of change-related problems on service quality. This process logs all significant changes to the enterprise environment, coordinates change-related work orders, prioritizes Requests for Change (RFCs), authorizes production changes, schedules resources and assesses the risk and impact of all changes to the IT environment. Given the scope of this process, it is easy to see why it interacts with every other process in the ITSM framework. As processes are executed, they affect the IT environment.

Change management processes regulate changes and, as a result, play a vital role in stabilizing the environment. The critical technical elements that are evaluated in determining the viability of a change are functionality, performance, cost, risk, schedule, and impact on operations and resource usage.

Release management processes involve activities for planning, constructing, testing, and deploying a collection of authorized changes to the production environment. The principle steps of our release management process are opportunity assessment, release planning, release preparation, release build and test, release implementation, release deployment, and release activation.

The Northrop Grumman Team will establish an integrated change/release management solution for VITA. The process includes implementation of the appropriate technologies required to monitor and report on needed service level information.

2.3.2.1 Coordination and Control of Changes/Releases

The Northrop Grumman Team's integrated change management process is the balance of a rigorous methodology honed over many years, and environments tailored to the specific needs of VITA. Our Team will work closely with VITA and customer agencies to develop a process that will address the corporate culture and the needs of the project. The change management process considers the following areas:

➤ *Documentation*—Changes and their impact must be documented as accurate documentation has a direct impact on mean time to repair.

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➢ *Communication*—It is essential to communicate change as widely as possible. The process must issue appropriate notice announcing change and schedule. Changes are monitored and the status is reported to VITA to verify that objectives are met and did not have unplanned impacts.

➢ *Approval*—Change requires a structured approval review process and a process to conduct acceptance test(s).

➢ *Schedule*—Change must be scheduled to provide VITA a structured and planned process providing for review of scheduled changes and a process to either approve or alter the schedule.

➢ *Asset Recovery Reallocation*—Change often involves the relocation or redeployment of assets, the process is the touch point for capturing that information.

➢ *Risk Analysis*—Change implies risk, so the process incorporates a risk assessment component for major projects.

➢ *Backout*—While major changes are thoroughly tested, the plan always has a backout plan in case the change fails.

While all of these aspects will be covered in the VITA plan, the rigor will be tailored to meet staff needs and Commonwealth culture.

There are several key components of the change management process. These include:

Change Approval Board (CAB)—Major requests that have a potential impact on VITA are presented for consideration to the CAB. The CAB is made up of involved VITA stakeholders. We recommend that VITA performance managers (as subject matter experts), the Cross-Functional manager, the service support manager and the service operations manager serve on the CAB. The change management coordinator manages the entire change process and tasks necessary to support the board. We will work with VITA to establish and charter the CAB. The CAB serves as the lynchpin of the change management process. Proposed requests are presented in a formalized manner to the board with a structured presentation. After the presentation there is a period of discussion. The CAB might decide in one of three ways:

1. *Approve*—Approve the project. When the project is ready to be implemented, the project manager files an RFC at the time the project is implemented.

2. *Reconsider*—The request may go before the CAB several times at various points in the lifecycle. This is most common for software development activities. Here the CAB guides the request and ensures that it will integrate with the overall software environment.

3. *Disapprove*—The CAB may not approve a request for many reasons, including poor return on investment, inconsistency with strategic vision or lack of funding.

Change Management Coordinator—The change management coordinator is responsible for directing the RFC traffic, resolving disputes, coordinating CAB meetings and maintaining the CAB website.

Infrastructure Design Review Board—Some change requests are extremely complex and require a much more rigorous review by additional subject matter experts or governing boards. We recommend the formation of an Infrastructure Design Review Board. This will be composed of network, server, security and other IT architecture experts who decide on the suitability and readiness of a particular change before it is formally submitted into the change/configuration management process. This board will meet on a frequent schedule (e.g., weekly) to

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accommodate VITA's business needs and changing environment. The Infrastructure Design Review is a highly structured process with a formalized presentation template. The presentation is judged "Accepted" in which case the change moves forward into the Change/Configuration Management Review Process or it is "Denied." If a presentation to the Infrastructure Design Review Board is denied, it must be reworked and re-presented until the RFC is approved.

The Northrop Grumman Team will present a detailed description of the change management process to VITA for its approval. After obtaining VITA's approval, Northrop Grumman will form a facilitated working group consisting of performance managers and Northrop Grumman Team members. This working group will tailor forms and processes and likely form the support staff of the CAB. The first process to come on line is the RFC process. As RFCs are received, the CAB will begin functioning using processes recommended by the change management coordinator based on a prioritization. The Operations Committee will review the change process for improvement.

2.3.2.2 Change Management Integration with other Service Management Functions

Our Cross Functional Services Office will oversee the change management process. This will ensure change management controls are integrated into the service delivery and service management process.

The Northrop Grumman Team proposes to use the Peregrine ServiceCenter's change management module to support the integration of change management across all functional areas. This approach will ensure tight integration with other service functions.

All implemented changes will undergo quality assurance review. This review includes assurance that associated documentation is accurate and conforms to documentation standards, that testing has been conducted in accordance with testing procedures and that software or system changes are properly logged and performed under established configuration control. In addition to providing assurance for specific changes, the quality assurance process has activities to monitor that the change management process itself is appropriately documented and has been executed properly. The team members performing quality assurance also monitor the change management process to identify opportunities to improve the efficiency and effectiveness of the process.

As described above, all RFCs and change management reviews are posted on the CAB website, giving VITA visibility into the change management process. The help desk receives RFCs and participates in the CAB process, these team members proactively watch for and report on the adverse effects of a change. Additionally if adverse effects are found, corrective action or rollback is initiated and a lessons-learned session is held with a full report presented to the Operations Committee.

Testing is a critical component of any change management process; the level of testing activities are tailored to the change being implemented. The following illustrations demonstrate varying levels of testing for different types of changes:

Software Image for Desktops/Laptops—The hallmark of a good desktop management solution is control of a stable desktop software environment. Our practice calls for regression testing of image changes.

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Security Patches—Typically, security patches are tested in a laboratory environment and then applied to a subset of servers or workstations. A rollback plan is in place and the change implementers coordinate with the help desk to spot problems.

2.3.2.3 Approach for Establishing and Utilizing a Test Lab

The Northrop Gruman Team will implement a Systems Integration and Test Laboratory (SITL) for VITA–specifically to provide a secure, dedicated, non-production environment to conduct system evaluation, analysis, systems integration and acceptance testing for compliance with VITA's security, IT architecture, policies, regulations and procedures. The SITL will be equipped with the hardware and software necessary to duplicate or simulate the environment at VITA sites. The SITL is also chartered to develop and maintain software release matrices across VITA's development, quality assurance, production and networks.

The SITL provides evaluation and testing of all new hardware that is being considered for implementation in the computing environment. These services will include testing of all hardware including PDAs, PC desktops and laptops, scanners, printers, plotters, servers and network devices.

2.3.2.4 Ability and Experience with addressing Commonwealth Regulatory Requirements

The Northrop Gruman Team will work closely with VITA to accommodate specific agency and overall Commonwealth regulatory requirements across all support processes, including change and release management.

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2.3.3 Problem Management

Instructions to Vendors: Describe the Vendor's process for problem management including: problem logging, problem resolution, tracking of unresolved problems, problem escalation procedures, and problem closeout and reporting practices. Vendor should describe the integration of problem management across sub-contractors, if applicable, such as the use of a single trouble-ticket tracking system.

> **Why the Northrop Grumman Team?** Northrop Grumman's problem management processes include incident management, incident trending, post mortem reviews, root cause analysis with capabilities of depth from get well plans to Six Sigma reviews. VITA needs a vendor who understands that the primary objective of problem management is to minimize the impact of problems on the business mission of VITA and the Commonwealth's agencies. Our approach addresses all possible inputs/outputs across the enterprise, ensuring that customers benefit from quick, responsive, resolution of problems.

The primary objective of problem management is to minimize the impact of problems on the business mission of VITA and the Commonwealth's agencies. Our implementation of problem management complies with the Information Technology Infrastructure Library (ITIL)/ Information Technology Services Management (ITSM) framework, as described in **Section 2.3.10**.

Problem management leverages and builds upon other related processes, including issue management, risk management, incident management, and change/release management. Each of these processes plays a key role for VITA and is closely related to the problem management process.

The benefits of a well-planned and efficient problem resolution management process include:

➢ Timely identification, diagnosis, reporting, and resolution of problems
➢ Enforcement of project scope by tracing problems to requirements
➢ Improved customer service through the use of a well-defined process for addressing problems that impact the end users
➢ Identification of process improvement opportunities based on problem reporting, root cause and trend analysis

The problem resolution process applies to anomalies found in a baseline configuration item, an application or a system. This includes problems found in testing, training, implementation, hardware, production, and maintenance.

2.3.3.1 Problem Logging, Resolution and Tracking

The problem management process consists of the following steps:

➢ Raise and log the problem
➢ Clarify the problem, if necessary
➢ Perform root cause analysis, if appropriate
➢ Develop an action plan
➢ Execute that plan
➢ Close the problem

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In VITA's large and complex environment, we believe that our focus on problem management and associated root cause analysis will pay off in reducing the number of incidents. The Northrop Grumman Team will deploy a problem manager and a team of problem analysts whose role is to proactively identify issues/incidents needing an in-depth review, diagnosis and resolution development. This team will identify and propose fixes for weaknesses in the architecture. Fixing these weaknesses will contribute significantly to the expected cost reductions.

The problem manager owns all problems and will coordinate their diagnosis and resolution with the service managers, the relationship manager, and the Operations Committee, if appropriate. Problems will be tracked using the Incident Management System, and all incidents, problems and resolution histories will be available to VITA and Northrop Grumman Team members via Web views.

The problem manager has responsibility for screening and prioritizing incoming problems to determine the next steps. Problem submission is the first step in documenting and tracking problems through the process. Submission starts with the originator or a system-generated alert. New problem submissions must contain sufficient data to serve the key steps in the resolution process:

➢ *Information describing the problem*—The problem description includes identification of the problem, where the problem was found, and what activity caused the problem to occur. The information should be sufficient to provide enough information to analyze the potential cause of the problem.

➢ *Information describing the potential impact of the problem*—The potential impact is an estimate of the measure of users, systems or services that are disrupted by the identified problem. Impact measures the breadth of the problem, not necessarily how serious an impact the problem has on the business capabilities of the program or the users.

➢ *Information describing the potential severity of the problem*—The potential severity measures how quickly the problem must be resolved to minimize adverse impact to the program or users. Severity measures the urgency of addressing the problem, and may change over time. For example, a problem that is initially classified as high severity because it impacts a report that is not needed for several months may be upgraded to critical severity if it is not fixed in time to produce the reports as planned.

➢ *Information identifying the originator of the problem*—The originator is the primary person who can describe the problem or address questions about the problem. The originator could also be an automated alert from another infrastructure monitoring system.

Once the problem manager receives the problem and determines that there is sufficient information to proceed, the problem is categorized based on both impact and severity. The process to categorize problems is described below.

Determine Impact—Impact is an estimate of the measure of users, systems, or services that are disrupted by the identified problem. The Cross Functional Services Manager will assign a numerical value for impact based on the description provided by the originator, and the scale provided in the **Exhibit 2.3.3–1**.

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Value	Impact
1	Systemwide impact affecting all users in a particular environment, regardless of function
2	Systemwide impact affecting all users in a particular environment
3	Impacts users across multiple geographic areas or agencies in production
4	Impacts multiple users within a particular geographic area or an agency
5	Impacts a single user or several users within a small group in production, or impacts one user in an environment

Exhibit 2.3.3-1   Impact Values
Impact values range from 1 (systemwide impact) to 5 (minimal impact).

*Determine Severity—*Severity measures how quickly the problem must be resolved to minimize adverse impact to VITA or users. The cross functional manager will assign a numerical value for severity, based on the description provided by the originator and the scale provided in **Exhibit 2.3.3–2**.

Value	Severity
1	➤ Production: Prevents the accomplishment of an essential function ➤ Production: Jeopardizes safety, security, or other requirement designated "critical"
2	➤ Production: Adversely affects the accomplishment of an essential function and no workaround solution is known ➤ Production: Adversely affects technical, cost or schedule risks to the project or to lifecycle support of the system, and no workaround solution is known ➤ Testing: Prevents accomplishment of essential function or test
3	➤ Adversely affects the accomplishment of an essential function, but a workaround solution is known ➤ Adversely affects technical, cost or schedule risks to the project or to lifecycle support of the system, but a workaround solution is known ➤ Testing: Adversely affects the accomplishment of an essential function and no workaround solution is known ➤ Testing: Adversely affects technical, cost, or schedule risks to testing, and no workaround solution is known
4	➤ Results in user/operator inconvenience or annoyance, but does not affect a required operation or mission-essential function ➤ Results in inconvenience or annoyance for development and maintenance personnel, but does not prevent the accomplishment of those responsibilities
5	➤ Any other effect

Exhibit 2.3.3-2   Severity Values
Severity values indicate the urgency of problem resolution.

Once the impact and severity factors are determined, priority is calculated using the matrix shown in **Exhibit 2.3.3-3.** Priorities are established using a numerical scale ranging from 9 (lowest priority) to 1 (reserved for emergency fixes). The initial weighting of the priority scale provides equal weighting for both impact and severity. These weightings can be adjusted based on input from VITA.

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Exhibit 2.3.3-3 Impact and Severity Factors
The Northrop Grumman Team's approach to problem categorization is ITSM-compliant, and enables support resources to efficiently address the most critical problems first.

This matrix provides the problem manager with a consistent, objective way to set a numerical value for priority based on the breadth of the problem (impact) and the urgency of the problem (severity). The final approval of the priority will remain with the problem manager, who will designate resources to both confirm the problem's assessment and work the problem resolution. Problems that share the same priority will be assigned in the order they were created, starting with the oldest problems first.

2.3.3.2 Problem Escalation

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2.3.3.3 Problem Management Integration

Redacted from Public Document – Proprietary and Confidential

2.3.4 Quality Management

Instructions to Vendors: Describe the Vendor's quality assurance and testing practices as well as how the Vendor incorporates each customer's unique requirements. Vendor should discuss how it will achieve continuous process improvement, including the performance of root cause analysis. The proposal shall describe the Vendor's internal quality management program. This should include reference to the use of any specific methodologies, as well as the receipt of any quality certification.

> **Why the Northrop Grumman Team?** Quality assurance (QA) activities will be employed throughout all aspects of VITA services, using a distributed approach specifying how every organization, function and person is personally accountable for quality. The Northrop Grumman Team will deliver excellence, strive for continuous improvement, and respond vigorously to change. VITA will benefit from products and services that are "best in class" in terms of value received for dollars paid.

By design and necessity, our commitment to quality is a Northrop Grumman core value. The success of our business, and in many cases the security of our nation and the lives of individuals, is at stake in many of the activities we undertake. It provides a strong foundation for our IT systems efforts, as well as our aircraft and aerospace systems, shipbuilding enterprise and electronics efforts. Our commitment to quality is demonstrated in the Northrop Grumman Team's approach and methodology (described below).

Quality assurance (QA) activities will be employed throughout all aspects of VITA services, using a distributed approach specifying how every organization, function and person is personally accountable for quality. The Relationship Manager has overall responsibility for the quality process and its results. Day-to-day operational administration and coordination of the quality as-

surance, change management and risk management processes will be executed by the cross functional services manager, under the direction of the Deputy Relationship Manager.

The cross functional services manager also will be responsible for the development and deployment of all quality processes for the program, so quality is effectively built into the support processes from the start. The cross functional services manager's QA responsibilities include:

➢ QA of contract deliverables

➢ QA visibility and communications

➢ Maintaining documentation

➢ Maintaining the status of service level agreements (SLAs)

The cross functional services manager also initiates and recommends solutions to ensure adequate quality controls throughout all areas of performance within the program.

The Northrop Grumman Team's QA methodologies and procedures are well established, and will be refined continually to ensure that each deliverable produced meets or exceeds VITA's requirements. Our QA process ensures that the project processes are being followed properly and improved continuously, i.e., provide overall "surveillance" to ensure that we are performing our work correctly and improving over time. QA collects data from all activities, including the planning and performance of the project's processes, providing early and continuous monitoring. As shown in **Exhibit 2.3.4-1**, our quality systems model expresses the implementation of the International Standards Organization (ISO) 9001-2000 model as implemented by Northrop Grumman.
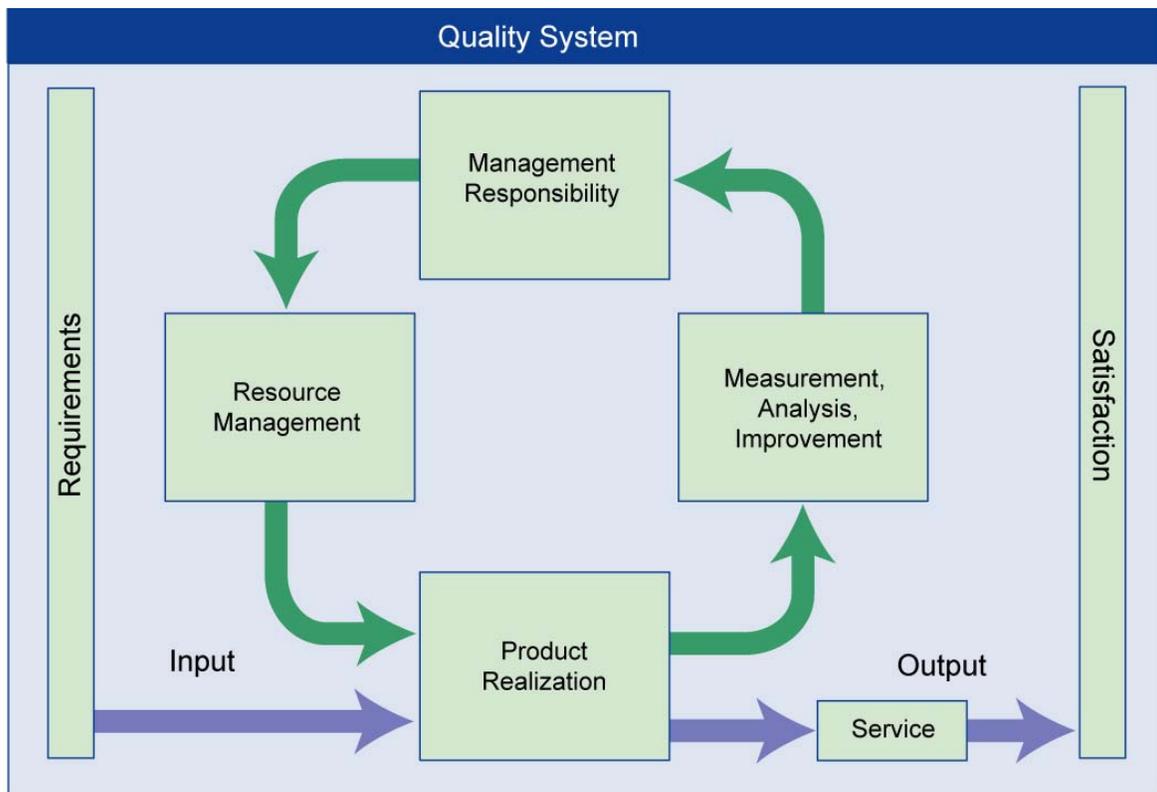

Exhibit 2.3.4-1 The Northrop Grumman Team Quality Systems Model

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Our model responds to each major requirement by monitoring and measuring the quality and effectiveness of the support activities.

This approach highlights responsibilities and goals for quality, defines requirements and identifies procedures to be used. Resources are identified, and management prioritizes them according to the customer's needs. Resources can be dynamically reallocated in response to customer requirement changes or in response to improvement activities identified by quality engineering activities. The entire system is used to identify more effective methodologies and processes and how these are implemented efficiently into the program.

2.3.4.1 Northrop Grumman's QA Process

Northrop Grumman's QA process is firmly rooted in our Institute of Electrical and Electronics Engineer (IEEE) and Capability Maturity Model Integrated (CMMI)-based methodologies and ISO standards. It incorporates specific methodologies, tools, and techniques we have developed over 40 years of QA measured performance. While standards-based, our approach is flexible and will be tailored to meet VITA's needs. We recognize that VITA is keenly interested in identifying and mitigating risks and complexity. To meet this need, our approach to risk identification and mitigation will always be to assess and evaluate risks from the program's criticality perspective. Our analyses will seek not only to identify actual work product and process defects, but also to base our recommendations on the defects' criticality and impact.

2.3.4.2 Incorporating Customer Specific Requirements into Each Service Area

The Northrop Grumman Team defines quality as conformance to our customer's requirements. The QA process we propose for VITA is ISO-9000-based and documented in the Northrop Grumman IT Standard Process manual, which has been written to be compliant with ISO 9001-2000 and CMMI Level 5 standards. These processes include revisions at regular intervals to incorporate and improve environment and customer-specific requirements. We believe this documented/proven integrated quality process will be a win-win partnership, wherein VITA and the Northrop Grumman Team, at agreed timeframes, assess service level metrics and costs to obtain process improvement gain sharing.

Our approach defines, documents, implements, and maintains program QA that objectively evaluates products and processes for adherence to applicable policies, plans, standards, and contract requirements. This approach, illustrated in **Exhibit 2.3.4-2**, has five major process steps.

1. **Address Generic Process Steps**

At the outset of the program, the cross functional services manager will customize QA processes, including root cause analysis, ensure that adequate resources are available to perform QA processes, identify work products to be placed under configuration management, develop QA monitoring plans, review QA activities with management, and collect designated work products, measures, measurement results, and improvement information to support future use and improvement of standard processes.

2. **Define Plans for Quality Assurance**

The cross functional services manager will establish and maintain plans for QA, including resources, schedules, reporting status, tracking quality metrics, and identifying stakeholders

The plans must ensure that QA personnel have organizational freedom, resources and authority to perform objective product and process evaluations and to initiate, effect, resolve, and verify solutions. The plans define and maintain project-specific quality standards, tools, and procedures

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affecting product and process quality. The participation of QA personnel in formal system integration and acceptance testing is defined.

3. Conduct Evaluations

On an ongoing basis, QA personnel will objectively evaluate performed processes and address non-compliances, including root cause analysis as appropriate. They will document and control evaluation results, manage quality issues using the program's tracking system, communicate quality issues, and ensure resolution of non-compliance issues with staff and managers.

Activities and products to be evaluated are defined in the QA plan, contract, policies, and process descriptions, as tailored from the CMMI and any applicable standards and procedures.

4. Participate in Verifications and Validations

QA personnel will attend management, technical and peer reviews to identify quality issues, and to ensure compliance with project plans and the defined process. Other duties include attending validations, witnessing formal tests to ensure the product meets requirements, and approving formal test reports.

5. Conduct Supplier Activities

Activities are designed to ensure that subcontractors and other suppliers follow the relevant QA requirements by supplying process documentation, conducting supplier evaluations, and assuring procured, received, and delivered products and documents are compliant with project quality provision. Records are maintained of supplier performance.
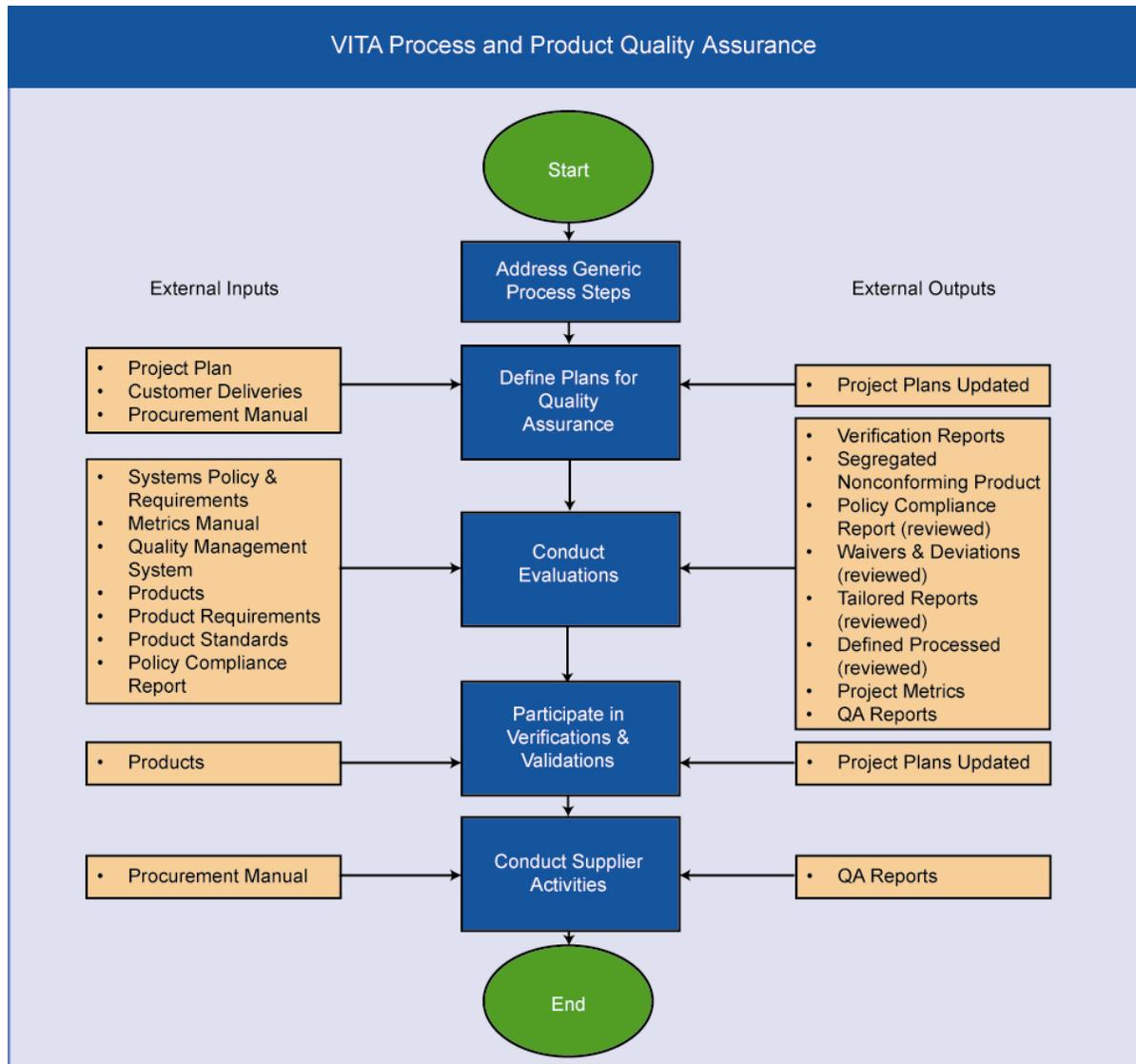
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Exhibit 2.3.4-2   Process and Product Quality Assurance Steps
The five major process and product quality assurance steps ensure a structured approach to quality.

2.3.4.3 Customer Satisfaction

Success requires meeting agreed measurements. As new technology and tools are deployed, definitions and measurements must be adjusted to understand the return on investment (ROI) and customer satisfaction. Using a scorecard, the key program performance indicators will be rated monthly by VITA and the Northrop Gruman Team to maintain focus on the program and communicate status to all managers. The summary level measures and management grades will be constructed from the "bottom up." These measures will be tied to performance incentives of our key employees.

One of the principal responsibilities of the cross functional services manager is ensuring that customer satisfaction is a high priority and has high visibility in this project. The cross functional services manager will coordinate with the service operations managers' activities that are

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targeted at the customer level. This person will serve as an advocate for customers' concerns and quick resolution to problems.

The Northrop Grumman Team will provide timely reporting, and implement a Web-based dash-board portal so that the Commonwealth can access and validate data and perform trend analysis. Each month, we will publish reports comparing our performance during the previous calendar month to the current service levels.

We propose quarterly quality information assurance audits to provide both VITA and the Northrop Grumman Team with validation of data or recommended adjustments to data collection and reporting.

We are well aware that an IT organization's credibility depends on achieving stringent success metrics. Therefore, we will implement proven metrics to measure performance and target future improvements.

2.3.4.4 The Northrop Grumman Team's Corporate Quality Certifications

The Northrop Grumman Team brings certifications developed through many ISO 9000 projects throughout the corporation. These certifications result in the implementation of standard processes that have been defined throughout Northrop Grumman. Our ISO certification includes the following areas:

➢ Hardware and software maintenance
➢ System administration
➢ Network design
➢ System integration and modernization
➢ Facility management services

The CMM provides structure to organizational capability, gained over time, through investment in process training and monitoring. This structure enables an organization to achieve significant gains in productivity due to consistency and efficiency.

Northrop Grumman provides six members to the Carnegie Mellon Software Engineering Institute (SEI) the developers of the CMM framework. CMM is a Northrop Grumman corporate wide initiative, and the company has achieved CMMI Level 3 throughout its software and systems engineering organizations; within the company 18 organizational units have been assessed at CMMI Level 5.

Over the past 2 years, Northrop Grumman IT participated in an industrywide effort to define a new CMM standard with the widest possible scope of application to engineering products and services. The U.S. Department of Defense and the Systems Engineering Committee of the National Defense Industrial Association sponsor the CMMI project. Version 1.1 of the new CMMI model was released in mid-2002.

2.3.4.5 Quality Assurance Integration with Change Management

All changes that are implemented undergo QA review. This review includes assurance that associated documentation is accurate and conforms to the established documentation standards, that testing has been conducted in accordance with testing procedures and has obtained positive results, and that software or system changes are properly logged and performed under established configuration control. In addition to providing assurance for specific changes, the QA process

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includes activities to monitor the change management process itself and determine if it's appropriately documented. QA staff also monitor the change management process to identify opportunities to improve the efficiency and effectiveness of the process.

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2.3.5 Personnel Management

Instructions to Vendors: *Describe internal standards, policies and procedures regarding hiring, professional development and human resource management. Describe how the Vendor's compensation structure is tied to customer satisfaction. Vendor should provide a biography of the project director with overall responsibility for the success of the outsourcing contract. The Vendor project director will be assigned to the Commonwealth account for a minimum of two years from contract commencement and physical work location will be in [Insert Location].*

> ***Why the Northrop Grumman Team?*** Our employees are the differentiator that enables us to go beyond responding to the needs of our clients to partnering with our clients to provide innovative services and solutions. VITA desires a partnership with an organization that puts people first. We recognize that our success is built on the quality of our people. As a result, our Human Resources function is chartered with leading the organization in maintaining a quality of employment that will attract the brightest talent the industry has to offer. Our mission is to exceed the expectations of every employee.

The foundation of a world-class work environment is built on the policies, procedures and standards that set the tone of the organization. Northrop Grumman's personnel management policies and procedures build a framework for consistency and efficiency while remaining flexible enough to meet the diverse needs of our business and employees. Northrop Grumman affords all employees the opportunity to advance to positions of greater responsibility and authority based on their skills and competency to perform the work required. We offer equal opportunity to every person, and foster an environment where creativity is encouraged and people are treated with dignity. These are embodied by our core values: quality, customer satisfaction, leadership, integrity, people and suppliers.

This section of our proposal addresses the policies, procedures and programs that Northrop Grumman will use on the Infrastructure PPEA to help our valued New Northrop Grumman Employees to fulfill their potential and be rewarded for doing so. It also addresses how our compensation structure rewards works and its key component. Included is the biography of our project director.

2.3.5.1 Internal Standards, Policies, and Procedures

At Northrop Grumman, we make it a priority to plan, develop and maintain human resources programs and services in a way that demonstrates that our employees are our most valuable resource. All human resources policies and standards are designed with three primary objectives in mind: the acquisition, development and retention of our employees.

A key component of the acquisition and retention of our employees is providing a solid compensation and benefits solution that is flexible and versatile to meet the needs of our employees and their families. We are confident that our compensation and benefits policies and standards establish the basis for a comprehensive package that is competitive within each industry segment that defines our business areas, is responsive to changes in economic conditions, complies with existing legal requirements, and will attract, retain, and motivate employees.

Northrop Grumman supports the development of employees through varied training and educational programs, including tuition reimbursement. These programs provide employees with opportunities for personal development based on individual capabilities and aspirations that are consistent with company needs.

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Northrop Grumman strives to provide and maintain a safe, healthy and drug-free environment at all our locations.

Hiring Policies

Equal Employment Opportunity—Northrop Grumman's strong commitment to work force diversity encourages inclusion of all people by maintaining a work environment supported by policies and procedures that foster a nondiscriminatory workplace. The strength of our company is greater than the sum of its extraordinary parts—people, customers, suppliers, and communities. Together, these parts combine to form a synergy of diversity that promotes innovative thinking.

Equal employment opportunity and affirmative action principles and policies are demonstrated in the practice of Northrop Grumman values, and are incorporated into the daily operations of the company in every personnel decision and action. Compliance with disability and veterans policies and principles is also included in the practice of our values, and is reflected in these decisions. In practice, our values create long-term benefits for Northrop Grumman. Through fair, equitable, inclusive treatment of every employee, we create an environment of respect where our employees are a valued asset.

To communicate our policies and practices, we revise and publish an annual affirmative action plan documenting the corporate goals to increase, as appropriate, the representation of minorities and women. Our annual plan reaffirms the company's commitment through effective leadership to ensure equal employment opportunities for qualified applicants and employees, without regard to race, color, religion, sex, or national origin/ancestry. Northrop Grumman adheres to a policy of non-discrimination on the basis of age, disability, veteran status, or sexual orientation.

Compliance with federal and Commonwealth employment regulations—As a trusted partner of federal, state, and local governments, Northrop Grumman's personnel management activities are conducted in full compliance with all employment regulations relevant to the areas in which we operate. We have been doing business in the Commonwealth for over 100 years, and are committed to strict compliance with all regulations in our role as an employer, business partner and corporate citizen.

At Northrop Grumman, we expect our employees to conduct themselves with the highest standards of ethical behavior, and we hold each person accountable for knowing and understanding the regulations that may impact his or her job. To ensure this level of awareness, all relevant policies and procedures are maintained and easily accessible at all times through our corporate repository, Command Media. Command Media is available to every Northrop Grumman employee and may be accessed through either the Web or Livelink, our knowledge management system.

Moreover, our Command Media administration system (CMAS) automatically manages all additions, deletions and changes to ensure that employees are only accessing the most current policies in effect. To ensure compliance, Northrop Grumman employs staff members whose sole job responsibility is to track changes to government regulations and make required updates to relevant Northrop Grumman policies, procedures and business standards.

Applicant Screening

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Professional Development

Training opportunities—At Northrop Grumman, we believe that the professional development and growth of our employees has a direct link to the growth of our company. To continually offer our clients the latest technological advances, we must ensure our employee training programs keep up with trends in the market. In recognition of the mutual benefits of having a highly skilled work force, we approach career development as a partnership between the company and the employee. Examples of development opportunities offered for both managers and technical specialists include:

➢ *Management courses—*Northrop Grumman has instructor-led and computer-based courses that prepare managers for the Project Management Institute certification exams.

➢ *Technical courses—*Through a partnership with New Horizons Computer Learning Centers, Northrop Grumman employees have access to computer-based courses on a wide variety of platforms and technologies.

➢ *Job-specific courses—*On each project, we use either in-house or vendor-provided training resources to prepare employees to implement or support new applications, tools and technologies. As we transition in the Infrastructure PPEA, we will conduct several job-specific courses for New Northrop Grumman Employees.

➢ *Education reimbursement—*We offer educational assistance (tuition reimbursement) for approved coursework completed at accredited institutions. Reimbursement may also apply to technical certifications.

Our training offerings are described in greater detail in **Section 5.4.1**.

Career development—There are no limits to what an employee can achieve at Northrop Grumman. In keeping with our commitment to partnering in the development of our employees, Northrop Grumman provides assistance such as in-house training, career development tools, and job shadowing and mentoring relationships to help our employees achieve their professional goals.

As part of the annual Performance Management Process (PMP), every employee participates in a one-on-one session with his or her manager to review the employee's performance goals and chart a career path and individual development plan. Career goals may include promotion in the employee's current position, expansion of management responsibilities, or even transition to a different technical field. Northrop Grumman's size and diversity of business lines mean that we have thousands of jobs available at any given time, and we encourage promotion and transfer from within.

We are pleased to be able to offer New Northrop Grumman Employees transitioning from VITA complete access to a wealth of career and development opportunities that may not have been readily available in the past.

Human Resources Management

Flexible schedules—An important part of valuing the diversity of our employees is affording them options that help them achieve balance between work and family obligations. Northrop Grumman recognizes that time is the key component to attaining that balance. Our ability to offer flexible work schedules helps employees to manage family commitments, make time for community activities, or further their education. Management has the authority to approve

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employee requests for flexible schedules on a permanent or temporary basis. We make every effort to accommodate these requests, ensuring there are no adverse effects on team commitments, deliverable schedules or customer requirements.

Additionally, with the coordination and approval of their managers, salaried employees may work flexible schedules (e.g., over 8 or 9 business days) during the 2 weeks of a pay period. With the coordination and approval of their managers, non-exempt (hourly) employees may work flexible schedules within a workweek, provided such scheduling does not result in the requirement to pay overtime premium pay.

Paid leave— **Redacted from Public Document – Proprietary and Confidential**

Performance Management Process—Northrop Grumman uses a robust, comprehensive performance management process. We employ a common review approach that enables managers to evaluate their entire team at one time to more accurately assess level of contribution, skill, and development areas. The process begins in January, with employees completing a self appraisal of their performance during the previous year. Managers review the self appraisal and collect additional input as needed. Such input may come from matrix managers, team members, subordinates, or customers. The manager combines all feedback, inserting his or her own feedback, to create a final performance evaluation. The evaluation is reviewed during a one-on-one meeting with the employee. Subsequently, in a second meeting the manager and employee will work together to set performance goals for the coming calendar year. During the year, the manager provides coaching to assist the employee in meeting the goals, including a mid-year performance review meeting at which time progress is assessed and goals are confirmed or reworked as appropriate. Successful performance is rewarded with a salary increase in March. This process is described in further detail in **Section 2.3.5.2** in the subsection Pay-for-Performance.

Diversity—Northrop Grumman embraces the diversity of our employees by celebrating Asian, Hispanic, American Indian, and Black History, as well as Disability Awareness and Women's History months. Northrop Grumman also participates actively in external diversity events and conferences including the Society of Hispanic Professional Engineers, Women in Technology, Society of Women Engineers, National Society of Black Engineers, Hispanic Engineer National Achievement Awards Conference, Black Engineer of the Year Award Conference, and others. Sponsored memberships are also available to some of these organizations.

As part of our internship program, we actively participate in the INROADS program. INROADS is an organization whose mission is to develop and place talented minority youth in internships in business and industry, and prepare them for corporate and community leadership.

Northrop Grumman and INROADS have worked together to bring ethnically diverse college students to intern throughout the company. Northrop Grumman firmly believes in the INROADS program, and this commitment is evident. At the 2003 INROADS Greater Baltimore-Washington Awards Banquet, Northrop Grumman was recognized with the INROADS Corporate Plus Award for the number of interns we employ and the quality of their internships.

2.3.5.2 Compensation Structure

Northrop Grumman's compensation structure is designed to motivate employees to continually improve their job performance and, in turn, customer satisfaction. We combine a pay-for-performance approach with variable compensation programs to reinforce one of our most important company values:

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> *"We deliver CUSTOMER SATISFACTION: We are dedicated to satisfying our customers. We believe in respecting our customers, listening to their requests and understanding their expectations. We strive to exceed their expectations in affordability, quality and on-time delivery."*

This is one of the six value messages that appear on our employees' badges. As they wear their new badges, New Northrop Grumman Employees will be reminded every day of the importance of delivering customer satisfaction to VITA and the Commonwealth's agencies. They will be rewarded for this focus through several performance-based compensation programs, which are described in the following paragraphs.

Pay-for-Performance

The Northrop Grumman PMP is intended to establish a partnership between managers and employees to achieve the following objectives:

➢ Recognize and motivate employees
➢ Document individual performance
➢ Encourage and improve professional development
➢ Promote attainment of business goals
➢ Strengthen team building
➢ Facilitate process improvement
➢ Increase customer satisfaction
➢ Enhance total company performance and shareholder value

The PMP is conducted in three phases, and after all three phases are complete, the manager approves a salary increase commensurate with the employee's evaluated performance, as shown in the **Exhibit 2.3.5-1.**

Phase	Description	Completion Date
1	Performance planning	First quarter of the current calendar year
2	Interim coaching	Mid-year of the current calendar year
3	Performance evaluation	January of the following calendar year

Exhibit 2.3.5-1   Evaluation Phases

The manager evaluates the employee on a number of performance factors. As shown in **Exhibit 2.3.5-2**, the first criterion for the number one performance evaluation factor, Assessment of Work Style Effectiveness, is commitment to results (focus on operating excellence): "Thorough and timely in completing assignments, products/services are of uniform high quality; resourceful in overcoming obstacles and solving problems; attains high levels of customer satisfaction." For the employee, this underscores Northrop Grumman's focus on doing well by serving our customers well.

Exhibit 2.3.5-2 Performance Evaluation Form
The Northrop Grumman performance evaluation reinforces our focus on rewarding employees for delivering customer satisfaction.

The overall evaluation, which is based on a total of nine factors (as well as performance against individually defined goals), is used to determine appropriate salary action. Employees and managers who focus the most on customer satisfaction are rewarded the most when salary raises are awarded.

In each of the past 5 years, salary increases have averaged between 3.5 and 5 percent.

Variable Compensation Programs to Recognize Outstanding Performance

Through our Timely Recognition Program (TRP), Timely Awards Program (TAP), and Management Achievement Program (MAP), we publicly recognize employee actions that have led to success in serving our customers. Each of these awards includes a cash component.

Timely Recognition Program—The TRP is an award program that allows employees the opportunity to reward a coworker for a job well done at any point throughout the year. There are three ways this award can be presented: employee to employee, customer to employee, or manager to employee. For example, a New Northrop Grumman employee could be recognized by a VITA customer for quick thinking in responding to a difficult problem. The TRP was designed to accomplish the following:

➢ Create an environment of customer service and satisfaction, positive attitudes, motivation, outstanding work performance, cost consciousness, dependability, and process improvement

➢ Give timely feedback on jobs well done

➢ Encourage superior customer service

➢ Recognize an employee with minimum paperwork and delay

Employees are eligible to receive more than one recognition award each plan year, with a limit of one per calendar quarter. A package containing the award item (usually a gift certificate) and a certificate of appreciation will be sent to the nominator within 7 days of human resources receiving a completed nomination form. Awards are presented to the nominated employee as soon after the accomplishment as possible.

Timely Awards Program—The TAP rewards significant and extraordinary individual or team accomplishments. To be considered for an award, employees and teams must document quantifiable, measurable accomplishments that have a positive impact on the company and address process improvement, cycle time, cost savings, quality, significant operational improvement, increased customer satisfaction, product delivery, and program development and implementation. The following is an example of a nomination for outstanding performance and attention to customer satisfaction:

> *"Joe provides excellent support in meeting the demands of a highly skilled and technical staff at ATD. He continuously provides outstanding guidance in meeting our internal network and desktop computer requirements. His technical expertise ensures that our engineers have the right tools and support necessary to effectively meet our customer demands. We continually receive laudatory comments for his quick and expert resolution of software and network issues."*

Based on scope and the impact of completed accomplishments, award amounts may range from $200 to $5,000 per employee depending on the policy established by each company element. Team member award amounts may vary based on degree of participation and level of contribution. Awards are paid as soon as the accomplishments have been completed.

Management Achievement Plan, Incentive Management Achievement Plan, And Performance Achievement Plan—The Northrop Grumman MAP provides managers and key contributors with a monetary reward or incentive based on exceptional overall performance and value of contribution to customer satisfaction and organizational and team effectiveness.

At the beginning of the plan year, the compensation department determines the number of MAP awards. Typically, MAP is a reward given to employees selected at year end. Awards are a percentage of salary, paid by check as a lump sum in March.

For the key account team and executives, our compensation structure includes the Incentive Management Achievement Plan (IMAP) and Performance Achievement Plan (PAP). These programs for senior managers are tied to specific goals established at the beginning of each year. IMAP and PAP are described in more detail in **Section 5.2.4**.

2.3.5.3 Project Director Biography

We have selected Joseph Fay as our project director (Relationship Manager). In this role, Mr. Fay will serve as our single point of contact, with responsibility and authority in working with VITA. He will be accountable for every aspect of the Northrop Grumman Team's performance.

Mr. Fay has 20 years of progressive senior experience in state and local information technology. He has held technical positions as well as multiple management roles—project manager, program manager and executive, over multiple projects.

In Mr. Fay's assignment as executive director of Public Sector Engagements (PSE), he is responsible for 500 employees supporting 23 states, and contracts with revenues of approxi-

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mately $100M per year. Mr. Fay is responsible for all aspects of program delivery—program management, project planning, employee development and deployment, financial performance, customer satisfaction, and executive customer engagement. PSE provides full lifecycle infrastructure solutions, including desktop management, multi-tier call center services, primary data center operations, mainframe and server management, and network management. In addition, PSE provides applications development and implementations, and systems maintenance and operations, on Web, client/server, and mainframe platforms for state health and human services customers.

Prior to his current assignment, Mr. Fay served as vice president in Northrop Grumman Mission Systems' state and local organization from 1999 through 2003. In this role, he led a 400- to 500-employee nationwide organization providing state and local systems development and applications support to state clients. From 1997 to 1998, he led similar programs in our Atlantic Region.

Prior to joining Northrop Grumman, Mr. Fay founded and led a small business that grew from 4 to 50 employees, and focused on the design and development of child support enforcement systems both directly with state clients and as a key subcontractor to major systems integrators. He led multiple projects in Delaware and Utah in the lead technical or lead management role. Prior to that, Mr. Fay served in executive, project management and technical roles for a systems integrator in the state and local marketplace.

Mr. Fay has degrees in English and Mathematics from the University of Virginia. His professional education includes technical, program management and leadership curricula. He has earned a Six Sigma Green Belt.

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2.3.6 Performance Management

Instructions to Vendors: Describe how Vendor plans, develops, modifies, monitors and reports on system and network performance. Vendor should demonstrate knowledge and experience of capacity and performance tools for managing all Commonwealth IT environments that are defined within this Detailed Package regarding both systems and network management.

> ***Why the Northrop Grumman Team?*** The Northrop Grumman Team will deploy Information Technology Service Management (ITSM) framework from our Centralized Management and Operations Center (CMOC) to integrate problem management, service level management, and capacity management across the enterprise. VITA needs a partner who understands how to develop an IT service model in which VITA's agency customers will want to participate. This will require establishing, among other things, a strong performance management capability. Our approach will provide the visibility and service level responsiveness that we will need to brand and expand VITA IT services across the Commonwealth.

Performance management is the art of resolving current performance problems, and preventing future performance issues. Without the resources and capacity to meet the needs of a particular system, those systems will not operate efficiently, and/or will suffer higher rates of failure or degraded performance. All too often, systems capacity issues are reacted to as opposed to prevented. This causes loss of productivity, degraded performance levels, and a higher number of outages.

The Northrop Grumman Team's performance management process provides continuous monitoring, reporting, troubleshooting, and automated response capabilities that are necessary in VITA's complex, heterogeneous environment. The solution provides interoperability and extensibility, reduces the complexity of managing a heterogeneous environment, is modular and scalable, and even anticipates infrastructure problems before they can affect the environment.

The Northrop Grumman Team has extensive experience delivering performance management solutions for thousands of servers across hundreds of customers. Our solution will make performance management a more automated, easier, and more accurate process. Also, through our integrated suite of tools, the Northrop Grumman Team will provide both standardized and on-demand reports to meet VITA's specific needs.

The Northrop Grumman Team's performance management solution is characterized by the following attributes:

➢ **An Enterprise Console**, which provides a "single pane of glass" view of the end-to-end environment—from client personal computers to the network, the servers, the applications, and the databases.

➢ **Proactive Monitoring**, which ensures the health of the infrastructure, and informs operators of any problems, thus preventing impact to end-users.

➢ **Rapid Problem Solving**, that is enabled by pre-configured instructions, actions and the ability to correlate performance metrics across all layers of the service (application, system, and network) to understand interdependencies and get to the root cause.

➢ **Service Management**, that manages applications by exception, with predefined reports to continuously prove that the application service is under control.

➢ **Smart Plug-ins,** that are pre-configured, easy to install, and link with the HP OpenView Operations console to extend capabilities to monitor additional service resources.

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➢ **Systems Management**, which provides a centralized point of control for managing VITA's business-critical services in a complex, heterogeneous environment.

The information collected through performance management also provides input to the service level management, problem management, and capacity planning tasks. Using historical data, our solution provides resource usage and performance trends in depth. With this information, we can predict and prevent bottlenecks, as opposed to allowing them to go unchecked, resulting in poor service levels. By comparing activity levels, we can balance workloads, allocate resources efficiently, and deliver a higher quality of service that parallels business needs.

The Northrop Grumman Team's Performance and Capacity Tools

Redacted from Public Document – Proprietary and Confidential

Server Performance Management and Capacity Planning

Redacted from Public Document – Proprietary and Confidential

Network Performance Management and Capacity Planning

Redacted from Public Document – Proprietary and Confidential

Visualization and Reporting

Redacted from Public Document – Proprietary and Confidential

2.3.7 Security Management

Instructions to Vendors: Describe how Vendor maintains physical and logical security of the IT services it provides. This should include an overview of the policies and practices to prevent, detect and resolve security breaches. In addition, Vendor shall demonstrate experience and ability to meet all regulatory requirements (e.g., HIPAA).

> **Why the Northrop Grumman Team?** The Northrop Grumman enterprise solution will secure physical and logical resources, personnel, systems, facilities, and data. VITA needs confidentiality, integrity and availability for the infrastructure services VITA provides. On the basis of our experience and recognized leadership, Northrop Grumman's defense-in-depth security approach integrates layers of protection providing VITA a comprehensive security solution.

Northrop Grumman is a premier first-tier manufacturer, integrator and services provider to federal civil and defense agencies, as well as multiple state and local governments. With more than 120,000 employees in all 50 states, plus a presence around the world, the Northrop Grumman Team is well aware of the importance of a sound and solid security infrastructure. We will bring our best practices to bear on behalf of VITA.

2.3.7.1 Maintaining Physical Security (PROPRIETARY & CONFIDENTIAL)

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2.3.7.2 Maintaining Logical Security (PROPRIETARY & CONFIDENTIAL)

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2.3.7.3 Overview of Policies and Practices to Prevent, Detect, and Resolve Security Breaches

Enterprise policies without simple-to-use mechanisms to support adherence and gather audit report data expeditiously merely provide rules and regulations with no motivation for compliance. Through a standardized security architecture implementation buttressed by centralized system management of the architecture, the policies and practices authored to prevent, detect and resolve security challenges can be enforced. Northrop Grumman provides a real-time cognizance of the enterprise security posture, supported by education and enforced by policy. Through an enterprisewide intrusion detection/prevention system, challenges to the enterprise from internal and external sources are detected and prevented.

Northrop Grumman requires each user to have, at the minimum, a 2-factor authentication requirement (something you know, something you have); challenges deemed malicious can be isolated quickly and appropriate legal action can be taken. Through the enterprise vulnerability assessment system, the constantly changing security posture of the enterprise is tested for compliance as well as enforced; newly attached devices, servers and desktops are scanned for policy compliance, appropriate patch level, and known configuration vulnerabilities. Individual networks are scanned automatically to detect rogue devices and changes in the network. All security systems report logging to centralized logging systems, where auditing and correlation of the log data provide awareness to the configuration and change management processes, as well as proactive response mechanisms.

Further, our management will ensure the development and maintenance of the Northrop Grumman Security Plan. The Security Plan will be reviewed quarterly for updates to procedures, policy changes, and updates to system operations. We will ensure that a baseline security posture for the enterprise is established, with minimally accepted security criteria specifically tailored for individual agencies in compliance with appropriate rules and regulations, such as Health Insurance Portability and Accountability Act (HIPAA), Privacy Act, and others. This includes provisioning for adherence to appropriate legal policies and practices from federal, Commonwealth of Virginia, and other sources.

2.3.7.4 Experience and Ability to Meet All Regulatory Requirements

The Health Information Portability Act (HIPAA) and Sarbanes Oxley (SOX) are examples of the complex regulations, we are regularly called upon to help our customers become compliant. Northrop Grumman daily, conforms to national and international laws and regulations. Our approach to compliance is first to fully understand the requirements prior to the system design phase where specific attributes are introduced that contribute to compliance, such as with the medical community where HIPAA applies. Second, with an understanding of the requirement, our approach is to provide a solution architecture, where this information is protected with boundary protection and encryption capabilities as appropriate to meet the mandated requirements. Ongoing and mandatory training provides further reinforces compliance.

Our support of state and local government subjects us to regular, rigorous and recurring security audits. An example is the Texas Family Protective Services where we are audited yearly by the federal government. This consists of procedural reviews, extensive report generation and system walkthroughs. The state audits are more rigorous and require patch logs and penetration testing conducted by the auditors. Upon completion, deficiencies are addressed and compliance demonstrated.

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2.3.8 Service Continuity Management (PROPRIETARY & CONFIDENTIAL)

Requirement: *Describe the policies and procedures to provide uninterrupted IT service. The proposal shall include descriptions of Disaster Recovery (DR) planning and testing capabilities, recovery site management (including the use of third-party contingency site providers) and standard backup and recovery procedures.*

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2.3.9 Project Management

Instructions to Vendors: *Describe methodologies used to carry projects from requirements through finished deliverables, including project management, checkpoints and periodic status reporting back to Commonwealth. Describe policies and procedures employed to ensure the timely completion of tasks in a quality fashion.*

> **Why the Northrop Grumman Team?** The Northrop Grumman Team will provide VITA Project Management Institute (PMI) and Information Technology Systems Management (ITSM)-based project management processes, providing a virtual extension of VITA's current project management capabilities across the entire project lifecycle. VITA requires a formal and robust project management capability to ensure effective coordination of the transition and transformation activities as they are deployed across the Commonwealth. Our approach will provide increased visibility, consistency and manageability of total project support within the Commonwealth, with one project management focus— the VITA partnership.

At start-up, during the initial two months of support, Northrop Grumman will work with VITA to identify funded projects that should be continued, modifications to existing projects to meet new requirements, and additional projects that will be presented to the Strategy Committee to commence transformation.

VITA is serious about effective project management, and has made significant investment in creating and maintaining PMI-based project management and support processes. VITA also maintains a certification program for project managers. The Northrop Grumman Team will integrate with and carry forward this discipline for seamless support.

This section provides a complete description of the Northrop Grumman Team methodologies used to carry projects from requirements through finished deliverables, including project management, checkpoints and periodic status reporting back to the Commonwealth. Primarily rooted in PMI guidelines, our policies and procedures are employed to ensure the timely completion of tasks in a quality fashion.

Project management is more than simply delivering on time and within budget. Successful project management carefully balances scope, quality, resources, risk, and schedule. Our comprehensive approach to project management focuses on jointly defining project expectations, completing deliverables as efficiently and effectively as possible, and achieving the expected project results. By using our rigorous approach to project management, we have built a strong reputation for managing projects that deliver quality products on schedule that meet or exceed customer expectations.

There are two distinct efforts going on during the course of a project: an effort to build the product (or service) requested, and an effort to manage that construction. Each has its own

deliverables, and each follows its own lifecycle. The project (product or service) lifecycle varies depending on the type of product being produced. For example, project software development efforts use a Software Development Lifecycle (SDLC), while a highway or bridge construction crew may use a Design and Construction Lifecycle.

The project management lifecycle, on the other hand, is the same for every line of business, and can be used to manage the implementation of the Commonwealth's enterprise systems, as well as an effort to update an organization's policy and procedures manual. While no two projects are alike, all projects should progress through the same five phases—initiation, planning, execution, monitor and control, and closing.

With a foundation based on an understanding of VITA's expectations, the Northrop Grumman Team follows a project management lifecycle approach derived from the best practices and guidelines based on our extensive experience that is firmly rooted in Institute of Electrical and Electronics Engineers (IEEE) Standard and Capability Maturity Model Integration (CMMI) based methodologies, and incorporates tools and techniques we have developed over 40 years of project management. Like VITA, our methodology follows the principles established by the PMI in its Project Management Body of Knowledge (PMBOK). While standards-based, our approach is quite flexible and can be tailored to meet the needs of any VITA project.

The methodology we employ is based on the approach that we have successfully implemented on previous large IT projects. It is characterized by a set of values established within the Northrop Grumman corporate culture. At the core of our value system is a 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 technical realities
➢ Formation of teams with best-of-class qualifications
➢ Development of a comprehensive understanding of the customer's requirements
➢ Creation of a partnership between the Northrop Grumman and VITA that includes ongoing communication and co-management
➢ Implementation of time-proven project management processes that result in project success
➢ Assignment of well-qualified project managers

Northrop Grumman's project management methodology covers the entirety of a project, from initiation to closure. As shown in **Exhibit 2.3.9-1**, our project work is organized into five phases that equate to the five PMBOK Project Management Process Groups: Initiation, Planning, Execution, Monitor and Control, and Closing.

The planning and monitoring and controlling phases are iterative throughout the lifecycle of the project and run concurrently throughout the execution phase. Our project management lifecycle processes, identified in **Exhibit 2.3.9-2**, are scalable and can be tailored to meet the needs of projects of any size. Our approach is to select the appropriate practice from our repertoire of best practices, and tailor it to the size and characteristics of the project, with appropriate levels of planning, execution, tracking, and closure.

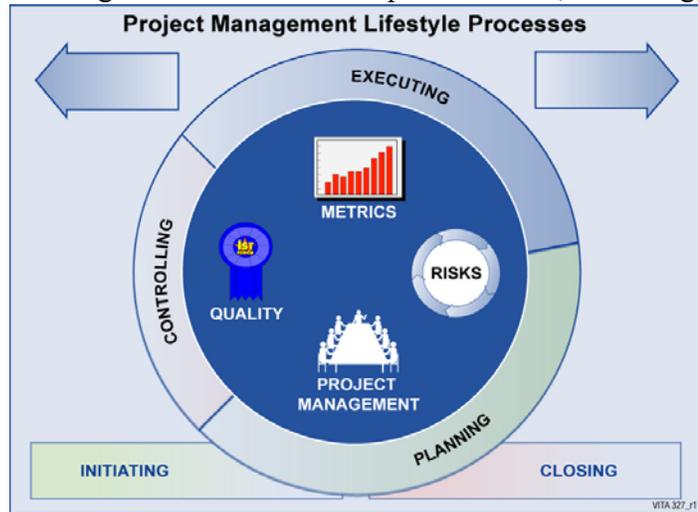**Exhibit 2.3.9-1 PMI-based Project Management Lifecycle Processes**
Using PMI processes ensures a structure approach to project activities.

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Exhibit 2.3.9-2 Project Management
Project management and process integration ties together many management disciplines to ensure success.

The PMBOK catalogs the inputs, tools and techniques, and outputs/deliverables for the project management process. In the PMBOK, these crucial elements are classified into nine Project Management Knowledge areas:

➢ Project Integration Management
➢ Project Scope Management
➢ Project Schedule Management
➢ Project Human Resources Management
➢ Project Cost Management
➢ Project Risk Management
➢ Project Quality Management
➢ Project Procurement Management
➢ Project Communications Management

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Northrop Grumman's methodology ensures that the project deliverables are developed during the appropriate project management phase, which is in exact conformance and alignment with the PMI PMBOK Guide. The Northrop Grumman Team uses a set of tools and techniques as control mechanisms to deliver high-quality services that meet or exceed customer requirements while keeping the project on schedule and within budget.

We discuss each of these management method elements below.

2.3.9.1 Integration Management

Once a project is initiated, monitoring and controlling of its costs, schedules, resources, processes, and products is essential to successful project conclusion. Project integration management includes gathering project, process, product performance, and other measurement data, analyzing the data, and reporting the results formally through regularly scheduled in-process reviews and project status updates, and at major milestones.

Northrop Grumman envisions developing integrated project work plans, through which all VITA technology projects are managed. Initial detailed inputs are drawn from the various stakeholders and performance managers, with placeholders for the effort to be performed by all anticipated parties, such as hardware vendors, outside consultants, etc. Central to integrated planning is an integrated schedule based on our experience in numerous large-scale implementation and technology efforts. It is important that all aspects of the work plan be defined and well understood to ensure adequate measurement of progress throughout the implementation effort. We know and understand that many projects emphasize the project schedule portion of the work plan that, at a minimum, should include the schedule, resource usage/loading, task and milestone dependencies (including Commonwealth tasks and other vendor tasks), and the critical path(s) for the project.

The project work plan will need to identify the key measurement data, responsibilities for providing the data on a timely basis; procedures for analysis and performance (earned value calculation, for example), communicating results, and determining how to formally effect project scope, schedule, cost changes; and when corrective actions need to be taken.

Monitoring project progress against plans includes:

➢ Tracking resources (staff, schedule, costs, suppliers) against plans
➢ Tracking processes against plans
➢ Reporting to stakeholders

Monitoring corrective actions to closure includes:

➢ Identifying and analyzing issues
➢ Identifying solutions
➢ Confirming approval of corrective actions
➢ Evaluating effectiveness of correction actions
➢ Reporting to stakeholders

2.3.9.2 Scope Management

Northrop Grumman fully recognizes the significance of the project scope management process for projects of the size and complexity found in the Commonwealth during due diligence. The task of managing change is critical in that its focus is typically on maintaining the integrity of the

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original project scope, requirements, schedule, and cost. Remaining open to project improvement, however, is just as critical to the success of a project. In fact, resistance to change can be deadly for a project.

Northrop Grumman has many years of experience performing project scope management and relies on its combined experience and Commonwealth guidelines for scope management, as well as PMBOK standards, to ensure the integrity of change management processes.

In software development projects, the basis for successful scope management is proper definition and documentation of requirements. Scope management must ensure requirements are documented, testable and traceable. Using an automated tool to manage requirements greatly facilitates this task.

As part of managing project scope, we will ensure there are effective and formal processes for requesting changes to a baseline (including, for example, the maintenance of a change control log, use of a change request template, formal impact assessments, review of change request by the Change Control Board [CCB], preparation and distribution of approved change requests, and access to change requests by project team members and other stakeholders as appropriate). We will receive and review impact assessments, consolidate assessments, and recommend dispositions to ensure that, as part of the decision-making process, the impacts are thoroughly understood by all. We expect to facilitate the CCB (or equivalent) review of proposed scope change, take meeting notes, and document and distribute board decisions.

As product and project work products are completed, we will manage scope verification and the work product acceptance process to ensure that work products are inspected as called for in project standards, and formal acceptance by the Commonwealth is documented. If acceptance is conditional, we will track the conditions in our issue database until they are resolved.

2.3.9.3 Schedule Management

Project schedule management includes integrating, analyzing and managing schedule data for the project. Our approach to schedule management provides a repeatable process that will:

➢ Provide analyses and supporting data that enable management to proactively identify issues, forecast risks, and take appropriate corrective action to resolve or reduce them

➢ Integrate the schedule with related data to produce needed work products

➢ Alert the customer (and project manager) to the potential for failure of an effort, providing the reasons for that potential, and recommending solutions

➢ Drive management and business partner collaboration efforts to develop recommendations for the sound management of a program or project

We will work to ensure that:

➢ An initial, fully integrated schedule baseline is established based on the work plan

➢ The schedule is changed in accordance with configuration management procedures

➢ All schedule data is maintained and provided using an integrated data environment

➢ Any changes to this schedule, including additions and deletions, will be coordinated among impacted parties and approved by the responsible configuration control authority

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➤ The schedule is baselined only after certification from the appropriate Governance Committee or its designee, that it represents an approved work breakdown structure (WBS), an approved budget, and the allocation of approved resources

➤ The production of the schedule is a Team effort, involving program/project management, engineering, and program/project control staff

➤ Interfaces are established with other organizations (e.g., development vendor, business partners, quality assurance [QA], and independent verification and validation [IV&V]) to identify, gather, evaluate, and assist in baselining and updating schedule data

For example, our approach to project schedule management will integrate the results of weekly schedule reviews, progress reports, planned activities, current issue status and resolution plans, risk status and mitigations, corrective actions, and resource commitments to provide the updated project master schedule. On request, schedule reports will provide our assessments of progress and changes against the schedule, as well as our assessments of schedule impacts on scope and requirements, on current tasks, and on regular project reporting.

2.3.9.4 Human Resource Management

This function relates to sourcing and managing project teams and the technical infrastructure to ensure sufficient resources are available to meet the project objectives on time and within the specified budget. Our approach to estimating the project team effort includes both a bottom-up detailed estimate, and a top-down, resource-based estimate by leveraging our shared experience to develop estimating factors in key area like process design and configuration.

2.3.9.5 Cost Management

Cost estimating is the process necessary for developing an approximation of the project costs based on the resources needed to complete the project. We will work with the project managers to develop comprehensive project costs. Cost budgeting will then aggregate the estimated costs to establish a cost baseline that becomes the project budget. As the project progresses, we will need to re-evaluate this information as the project scope, schedule, or resources change.

2.3.9.6 Risk Management

Risk management is a forward-looking management discipline that plans ways of handling potential events that may pose a threat to project quality, cost or schedule (risks). It applies normal management disciplines to project risks to:

➤ Foresee threats to success

➤ Create contingency plans for dealing with critical uncertainties

➤ Monitor threat status

➤ Engage risk-handling activities when required

As part of our initial process assessments, the program organization will review the current risk management plans and associated risk response or workaround plans to determine if the process is effective in foreseeing and avoiding or mitigating risks. As weaknesses are identified in the plans and procedures, we will revise the plan and continue to review it at least annually.

Our objectives in risk management are to:

➤ Ensure that risks are managed aggressively and consistently across projects to minimize foreseeable quality, cost and schedule impacts

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➢ Maximize the probability that the Commonwealth receives products and services on time and budget

➢ Provide visibility into project risk management status

➢ Provide clear methods of communicating our risk management disciplines to our Team, customers and partners

➢ Coordinate risk management techniques and procedures to maximize the value of our investment in our staff

In previous engagements, we have found risk taxonomy checklists to be an effective tool in working with individuals, groups of stakeholders, or more formalized risk workshops for identifying risks. They ensure a broad investigation of project risk, including system and product engineering and integration, development and production environment, and program constraints. Completing the checklist at key stages in the project ensures that risk information is kept current over time.

While not defined as a PMI knowledge area, effective issue management is fundamental to the success of any project. When identified, each issue must be documented, prioritized, assigned, and ultimately resolved within a specified and relevant time period. Projects can define—and even implement—issue management recording, tracking and reporting procedures, but these will not be successful in keeping the project on track if they are not supported by tenacious project management. Large, complex IT projects will generate a substantial list of issues. Among them will be political and turf-war issues, program issues, and product and process issues. A superficially simple issue may, upon investigation, turn into a Pandora's Box, spreading far beyond the impact originally assessed. It is an unfortunate fact that issue-owners will ignore issues not on their critical path unless there is a vital and forceful issue management process, and an issue manager sensitive to project priorities and resource requirements, who is capable of working the critical issues until they are resolved.

2.3.9.7 Quality Management

The Northrop Grumman Team proposes to perform a continuous assessment of the processes and products of the VITA development efforts, while providing feedback to the Commonwealth through regular status meetings. This approach balances the need for rapid feedback to the Commonwealth on project status, deficiencies and recommendations with the thoroughness and depth addressed by formal deliverables. We will provide regular assessments in the status meetings with the VITA project managers and meetings with the VITA Program, Performance, and Service Operations managers. Our Quality Management approach is presented in greater detail in **Section 2.3.4 – Quality Management**.

2.3.9.8 Procurement Management

The Northrop Grumman Team has extensive experience with procurement assistance that includes Request for Proposal (RFP) development, comprehensive proposal evaluation and scoring, and IT alternatives analysis and vendor due diligence. We have recently put our experience to use at the Florida Department of Revenue's Child Support Enforcement Automated Management System Project, to assist in selecting an implementation vendor. Our procurement management methodology is a repeatable and successful framework based on industry standards. Our methodology provides VITA with an independent and unbiased process

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for screening, evaluating and selecting solutions (products and services) using a systematic approach and experienced practitioners.

The Northrop Grumman Team's procurement management methodology includes the following core steps:

➢ *Planning and Strategy Development*—Determine what to procure and develop the procurement strategy; educate key stakeholders on the general nature of the procurement requirements and parameters

➢ *Solicitation Development*—Develop a clear and concise solicitation document that outlines the needs of VITA and solicits necessary information to evaluate responses

➢ *Selection Oversight*—Review and evaluate the qualified responses received from all participating vendors

➢ *Contract Development and Administration*—Negotiate and award a contract with the most qualified vendor as defined by the evaluation criteria and demonstrated by the evaluation results to allow initiation of the proposed work; manage the contract and any contract-related changes

➢ *Contract Closure*—Complete and settle the contract, including resolution of any outstanding items

Our approach to procurement management for VITA efforts can be modified to meet the specific needs of each technology procurement and each agency customer that may participate.

2.3.9.9 Communications Management

Communication planning identifies and plans messages to project personnel, sponsors and other stakeholders about the project. The project communication plan addresses the six basic elements of communications: communication, message, communication channel, feedback mechanism, receiver/audience, and timeframe. Project communications typically include status or progress reports, training coordination and conduct, and reports and publicity to the project stakeholders. A communication plan is a key component of the project work plan.

Our experience has taught us that effective communication, both formal and informal, is a basic foundation of any sound project management approach. The Northrop Grumman Team believes that keeping all project stakeholders fully informed of project status and conditions is the best way to achieve consensus and clarity, and we believe this can best accomplished through formal status meetings and status reporting.

A more detailed discussion of communications management and organizational change management is provided in **Section 2.3.11**.

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2.3.10 Information Technology Infrastructure Library/Information Technology Service Management

> ***Why the Northrop Grumman Team?*** VITA needs a technology partner who can provide a service delivery and support environment that optimizes the Information Technology Infrastructure Library (ITIL) best practice processes and methodologies for implementing Information Technology Service Management (ITSM). The Northrop Grumman Team includes Hewlett-Packard (HP), the leading source of ITSM consulting and process engineering; HP experts will ensure that we effectively and efficiently develop standardized delivery and management processes as part of our overall transformation strategy.

We will initially implement Northrop Grumman's best practice processes and procedures across all functional areas to begin the transformation of IT support from the current distributed environment to a more enterprise-oriented support model. Through the Transition phase, we will provide a service delivery and support environment that optimizes these initial processes based on ITIL and HP best practice processes and methodologies for implementing ITSM. During this optimization, we will also accommodate VITA and agency best practices, where possible, to develop a best of breed solution across the Commonwealth enterprise.

Our approach through transition will address the eight core processes for the application of IT service management. These processes will be the cornerstones of all service development for the program. The eight processes to be addressed are:

➢ Change management
➢ Configuration management
➢ Incident and service request management
➢ Problem management
➢ Service level management (service level monitoring and reporting)
➢ Capacity management (including performance management)
➢ Service continuity management
➢ Release management

The Northrop Grumman Team will facilitate ITSM workshops to establish, optimize and deploy these processes across the support organization during transition, and primarily within the first year.

This approach will ensure that we, together with VITA, will provide the highest quality services, as well as requirements traceability, through all phases of service development, implementation and sustaining operations. As the processes are further developed and optimized, this centralized approach will:

➢ Improve productivity due to increased service quality
➢ Set consistent, measurable service standards
➢ Balance service level cost and complexity
➢ Clarify and formalize both VITA and customer service expectations
➢ Improve and stabilize the relationship between the VITA partnership and our customers
➢ Facilitate the branding of VITA services

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➢ Align service offerings to the needs of VITA customers

➢ Provide the most cost-effective support possible

A Brief History of ITSM

ITSM began as a project undertaken by the government of the United Kingdom (UK) in the early 1980s. In the midst of a serious economic downturn, the government was forced to lower costs and better manage IT service delivery. The government knew it needed to develop innovative ways to improve IT service efficiency.

The government put the British Central Computer and Telecommunications Agency (CCTA) in charge of the project. The CCTA knew it could increase efficiency quickly by focusing on improving IT processes. The team recruited consultants, vendors, and users to design a set of best practice-based IT processes, which were then documented using a common glossary of terms and published in an integrated series of 40 books. This series, recently updated and repackaged as 7 books, is now referred to as the Information Technology Infrastructure Library (ITIL).
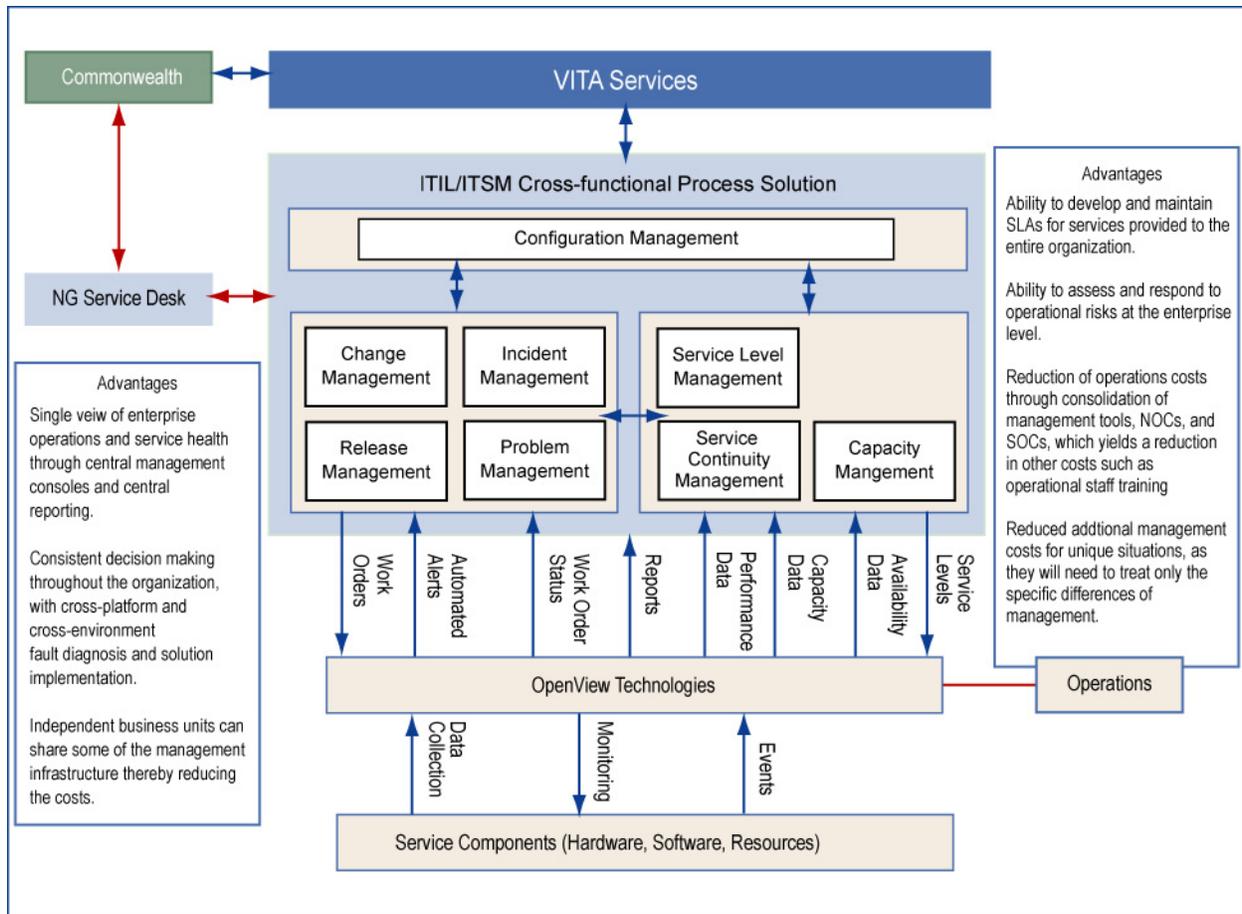
ITIL is the most comprehensive and respected source of information about IT processes written for organizations seeking to implement IT service management. Successful companies and governments worldwide have adopted ITIL. Organizations such as the ITSM Forum (ITSMF), an independent, international ITIL users group, help to share ITIL best practices. Many consulting and educational firms around the world now offer ITIL training and certification programs for IT professionals.

Our ITSM Solution

The Northrop Grumman Team will leverage the strength of our team partner, HP, to develop and deploy ITSM products and services. HP is the leading source of ITSM consulting and process engineering in the U.S. today. As depicted in **Exhibit 2.3.10-1**, this approach will enable the VITA partnership to effectively and efficiently develop standardized delivery and management processes as part of the overall transformation strategy.

The key objectives of our ITSM solution will be to structure and improve consistency and measurability in:

➢ Handling IT incidents and IT service requests (incident and service request management)

➢ Structurally resolving IT issues (problem management)

➢ Coordinating IT changes (change management)

➢ Maintaining and providing information about IT assets and their relationships (configuration management)

➢ Managing IT services and service level agreements (service level management)

➢ Managing the change and its effect upon IT support staff to ensure a successful transformation with minimum disruption while implementing the ITSM solution.

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Exhibit 2.3.10-1   Proposed ITSM Solution
The Northrop Grumman Team's ITSM solution will provide a centralized focus on process optimization, not only through the transition, but also for the entire program.

The Northrop Grumman Team's specific ITSM solution will include:

➢ Change management

➢ The change management process ensures that standardized methods and procedures are used for prompt handling of all changes to the production environment to minimize the impact of change-related problems in IT service quality.

➢ Configuration management

➢ Configuration management is a disciplined process used to specify, track and report on each IT component under configuration control, referred to as a configuration item (CI). Data is stored in a logical entity known as the configuration management database (CMDB).

➢ Incident and service request management

➢ The primary objective of the incident and service request management process is to "restore normal service operation" as quickly as possible with minimum impact to the production environment." Service level agreements (SLAs) typically define what is meant by "normal service operation". This is, therefore, a proactive process that seeks to minimize disruption to the customer.

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> ➢ This process also manages the day-to-day support interface between customers and service providers. The process encompasses call management, responding to service requests, and efficient first-, second-, and third-level support.

➢ Problem management

> ➢ Problem management is a proactive process focused on reducing the number of incidents occurring in the production environment by performing trend analysis and addressing the root causes of failures of closed incidents.

➢ Service level management (service level monitoring and reporting)

> ➢ Service level management is the process of managing the quality of IT service levels according to mutually agreed-upon SLAs.

> ➢ This process defines, negotiates, monitors, reports, and controls customer-specific service levels within predefined standard service parameters.

➢ Capacity management (includes performance management)

> ➢ The purpose of the capacity management process is to define, track and control IT service capacity on an environmental level, ensuring service workloads are ready to meet the demands of customers at agreed performance levels.

> ➢ The capacity management process seeks to understand the business requirements, the organization's operation, and IT infrastructure, and ensure that all the current and future capacity and performance aspects of the business requirements are provided cost effectively.

> ➢ The capacity management process includes definition and execution of ongoing performance management.

➢ Service continuity management

> ➢ The service continuity management process manages an IT organization's ability to continue to provide predetermined service levels to customers following a serious interruption to the business. This process is an integral part of a larger corporate business continuity management (BCM) process.

➢ Release management

> ➢ The release management process involves activities for planning, constructing, testing, and deploying a collection of authorized changes to the production environment.

> ➢ Release management includes managing one or more release units using project management disciplines, control and support standards. It is based on the release management service support process described within the ITIL framework.

According to ITIL, "IT service management is concerned with delivering and supporting IT services that are appropriate to the business requirements of the organization. ITIL provides a comprehensive, consistent, and coherent set of best practices for IT service management processes, promoting a quality approach to achieving business effectiveness and efficiency in the use of information systems."

Having designed and implemented ITIL-based solutions for the past 11 years, our team partner, HP, takes the definition of ITSM a step further by defining ITSM as a business-driven approach that IT organizations can use to design, build, manage and evolve quality IT services that are

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customer-focused and process-driven, meet quality, agility, and cost targets, and enable the achievement of service-level targets as defined in SLAs.

Implementing ITSM provides an IT organization with service delivery capabilities that are stable and cost effective, yet agile. In addition, IT service quality is measured and improved, providing greater value to the business. These types of impacts make ITSM a crucial factor in achieving sustained business success.

Approach/Methodology

The Northrop Grumman Team has learned that ITSM projects should be structured to build on each other, thus providing maximum benefit to the client IT organization. We will work with VITA to develop a project schedule that will allow us to address the ITSM processes within the first year of the Transition phase. This will include performing several workshops focused on different processes—in parallel.

The Northrop Grumman Team will provide a methodology for guiding the VITA partnership through the planning, design and implementation of IT service management processes. The processes this methodology is typically applied to are identified in the framework HP uses, called the ITSM Reference Model, shown in **Exhibit 2.3.10-2**.
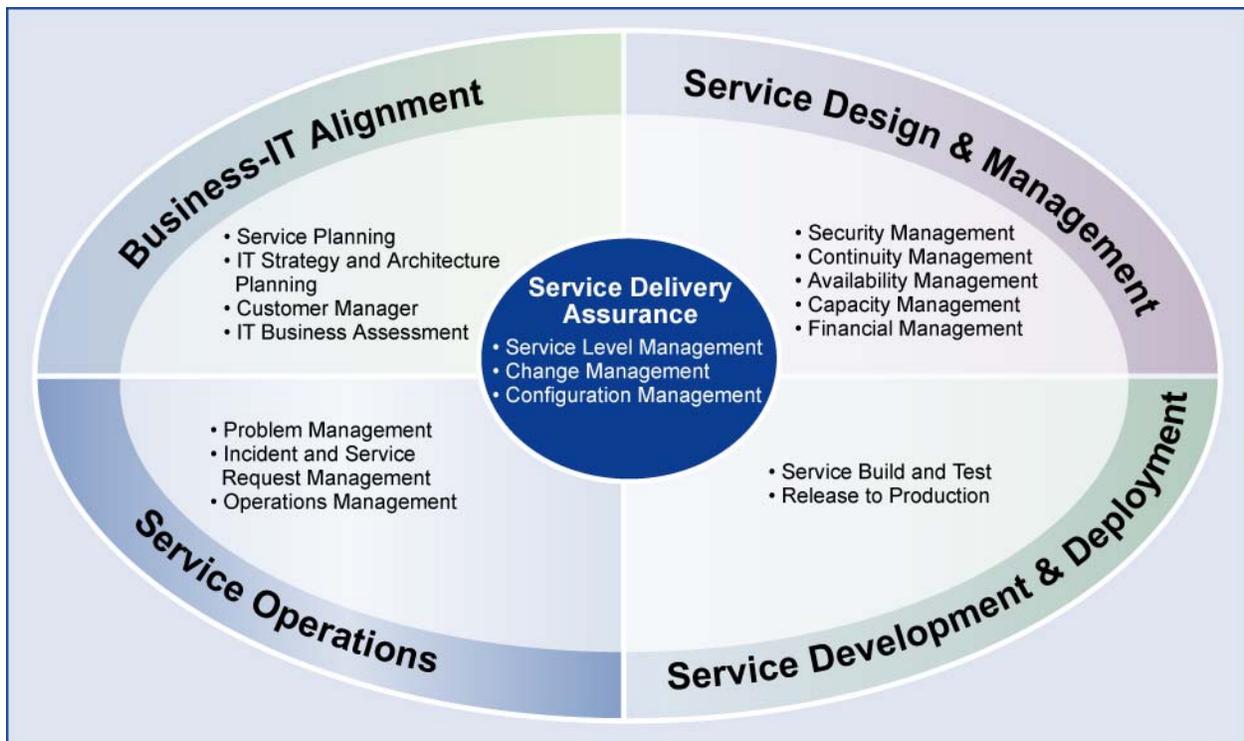
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Exhibit 2.3.10-2 The HP ITSM Reference Model
ITSM categorizes the 17 ITSM processes.

Some of the processes described in the HP ITSM Reference Model are standard ITIL processes, while others have been modified slightly, and enhanced based on years of HP design and implementation experience. Still others, most notably in the upper-left side of the model, have been added because HP's approach has always been to enable IT organizations to run "as a

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business," as opposed to ITIL's emphasis, which has traditionally been on running IT "within a business."

Behind the processes in the model are detailed guides that have been written for each process in the model. These guides are not meant to replace ITIL books, but to enhance ITIL by providing even more process details. Additionally, various levels of collateral are available for the processes in the model. All this material will be used to facilitate the development and optimization of support processes for VITA services. The model was essentially developed to define the processes and relationships required to:

➢ Manage the complete IT services lifecycle

➢ Enable mapping of IT processes to organizations and people for execution and control; and management technology for automation, standardization, simplification, modularity and consistency

➢ Allow for the benchmarking and continuous improvement of IT

ITIL books describe only what an organization should look for when considering implementation of a particular IT process. The HP ITSM Reference Model process guides also describe what we will need to consider, albeit at a much deeper level. Therefore, the few real differences between ITIL and the processes in the HP ITSM Reference Model occur in how they are designed and implemented.
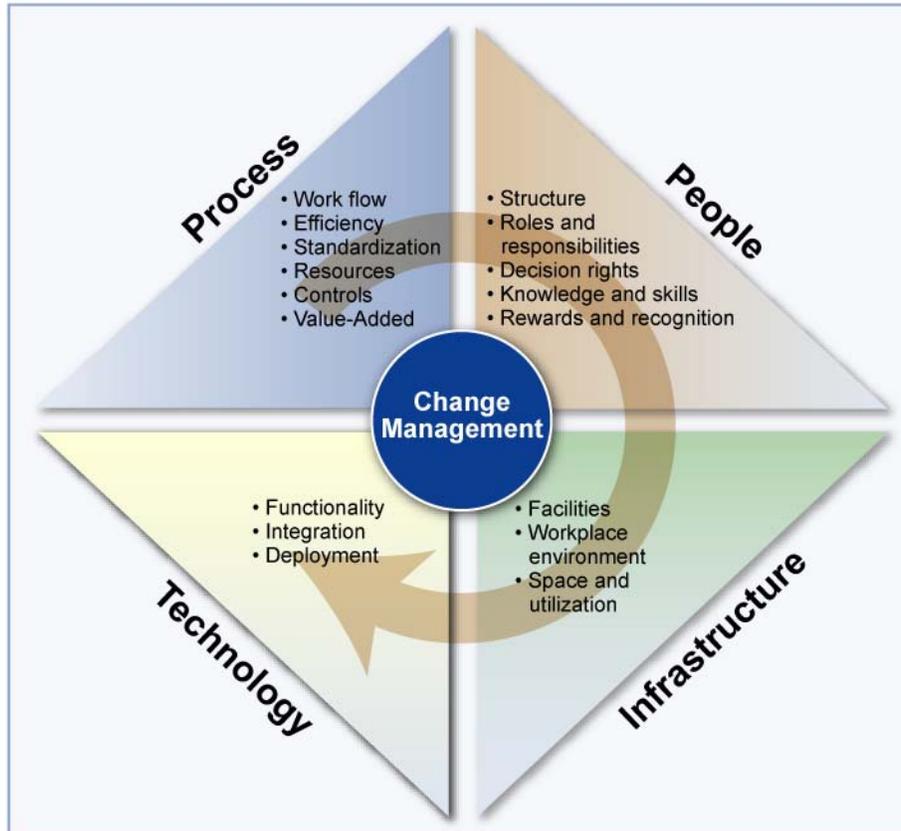
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2.3.11 Communications and Organizational Change Management

> *Why the Northrop Grumman Team?* Northrop Grumman will execute an interactive approach to tailor communications, define organizational structures, and identify targeted motivators for change. Through our due diligence process, the Northrop Grumman Team understands that VITA needs to work with employees and customers to help them become ready, able and willing to perform in the new IT service environment. This will foster clarity and support for transition activities, resulting in improved service delivery and increased customer satisfaction.

The Commonwealth of Virginia has embarked on a revolutionary path to fully transform the provision of IT services. VITA's management, employees, customers and other stakeholders have already experienced the early effects of this change through the creation of VITA and the centralization of IT services. With the infrastructure technology transformation enabled by the Public-Private Education Facilities and Infrastructure Act (PPEA), VITA takes another step forward.

The Northrop Grumman Team fully recognizes that the infrastructure transformation is one component of a much larger transformation initiative. To guide the overall transformation, the Northrop Grumman Team will leverage Booz Allen Hamilton's multidimensional transformation framework, shown in **Exhibit 2.3.11-1**.

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Exhibit 2.3.11-1 Transformation Framework
Our transformation framework addresses multiple dimensions of change.

Understanding and managing the complexity of multidimensional change is imperative to the success of the infrastructure transformation. Even the best information technology (IT) solutions can fail to reach their full potential if employees and customers are not ready, able and willing to perform in the new environment. Research by Gartner Inc. indicates that through 2005, 75 percent of organizations contemplating widespread change will fail to adequately consider their organizational ability and willingness to adapt.

Our framework serves as a tool with which we will assess the multiple dimensions of change and deliver concurrent capabilities in an integrated, faster and more effective manner:

➢ *Integrated:* The multiple dimensions of change are integrated throughout the transformation.

➢ *Faster:* Addressing dimensions of change in parallel rather than sequentially produces faster results.

More Effective: Concurrent (versus sequential) execution across dimensions allows for alignment and efficiencies that would otherwise be overlooked.

As employees, customers and individual stakeholders experience a multitude of changes across all dimensions, we will balance the changes using a portfolio approach to prevent change fatigue.

The following sections describe our approach to each of the five dimensions as they apply to VITA's transformation.

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Process

Business processes are a critical element of an organization's capabilities. In the case of VITA's transformation through this public-private partnership, processes support the delivery of IT services as well as the effective governance of the partnership.

The Northrop Grumman Team will leverage Booz Allen's approach to process redesign, which consists of three phases: analyze process performance, design improvement, and pilot and validate. This approach is shown in **Exhibit 2.3.11-2**.
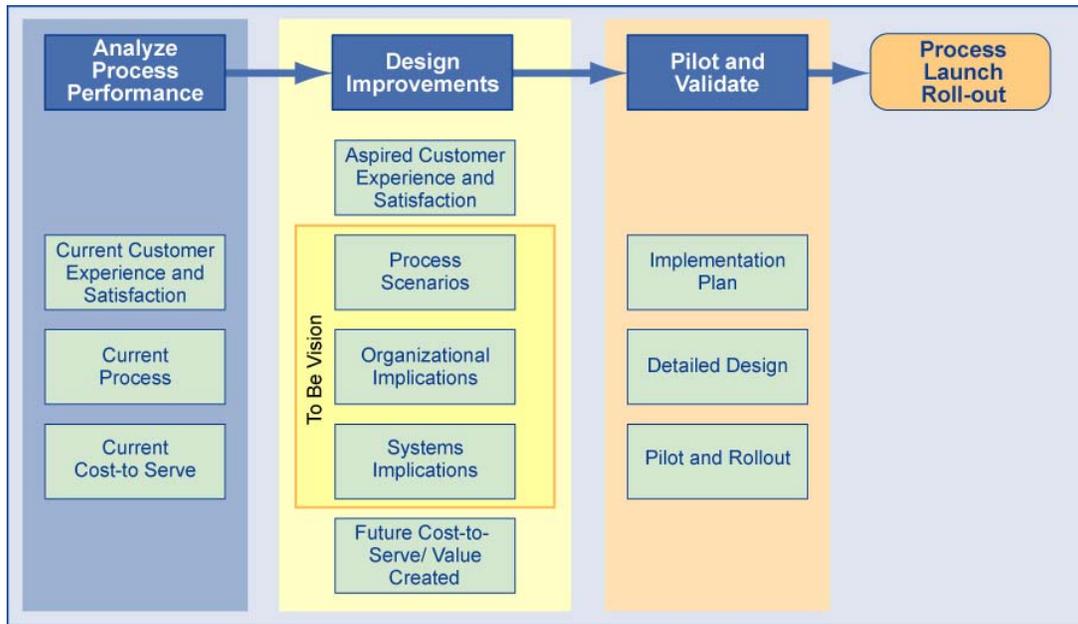

Exhibit 2.3.11-2 Process Redesign Methodology
Our process redesign methodology provides a systematic approach to combine effective elements of current processes with innovations that will lead to improved customer satisfaction and greater efficiency.

Since processes relate to customers and their needs, either directly or as contributors to other processes, our approach is focused on customer experience and satisfaction. It also takes into account the organizational and system implications of redesigned processes, as well as cost. In designing improvements, we consider the sequence of activities (workflow), decision rights and accountabilities. We clarify differences in terms of what can be standardized and what must be tailored in order to meet unique needs. We define the resources required, the necessary controls and performance targets, and we describe how to achieve the targets for both value and cost.

People

The ultimate success of the infrastructure transformation relies not only on the successful adoption of new processes and technologies, but also on the successful design of organizational roles and responsibilities, performance measures, incentives, structure and information sharing. These elements collectively design the "rules of the game" for individuals within an organization, and ultimately, it is the behavior of individuals that will affect VITA's ability to execute the infrastructure transformation. We will leverage our experience in designing the organization structure, decision rights, motivators and information across literally hundreds of public and

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private organizations, to build in the capacity for sustained high performance in the VITA public-private partnership.

The Northrop Grumman Team will work with VITA to establish an organizational partnership capable of executing the infrastructure transformation. To do this, we will leverage Booz Allen Hamilton's Organizational DNA framework, shown in **Exhibit 2.3.11-3**.
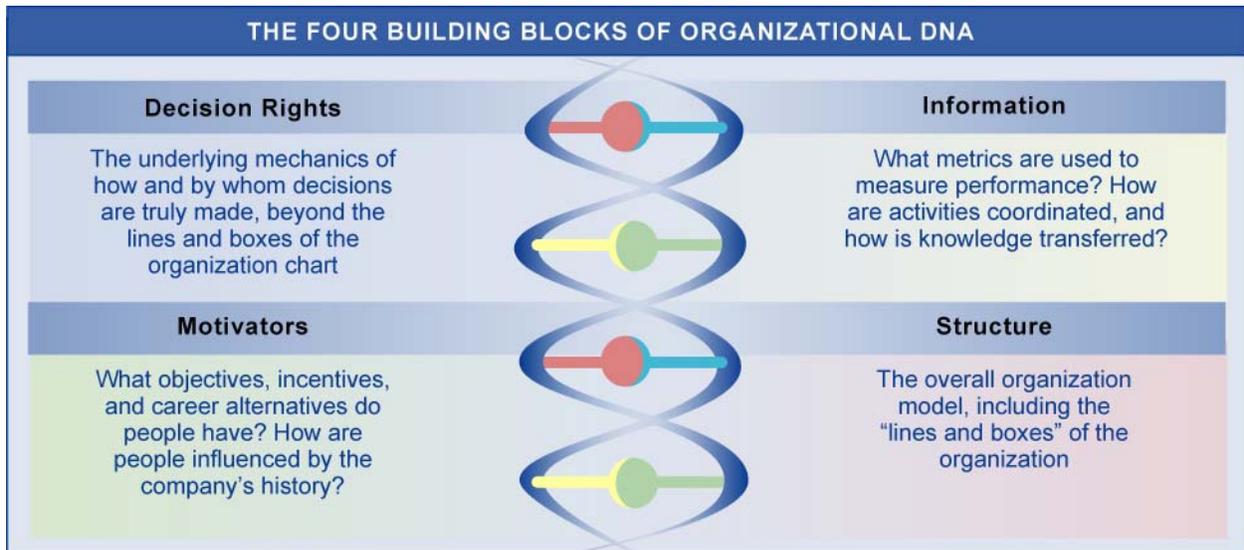
Exhibit 2.3.11-3 Components of Organizational Design
Proper alignment of organizational DNA is essential to the effective execution of the infrastructure transformation.
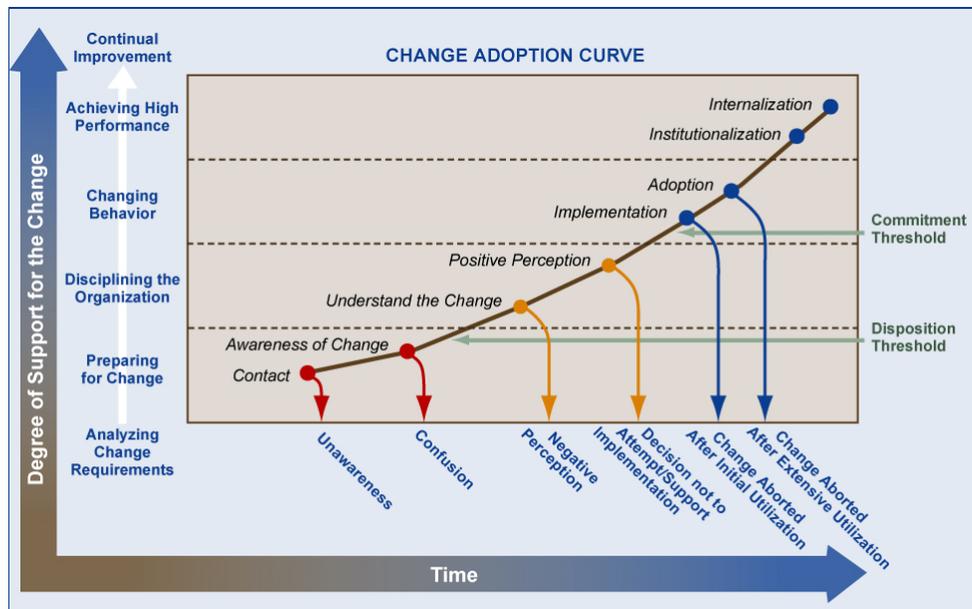
Technology and Infrastructure

Refer to **Sections 7.1** and **11.3.3–11.3.10** for the Northrop Grumman Team's approach to technical and physical infrastructure transformation. **Section 7.1** provides the details on the Northrop Grumman Team's transition plan and the identified sections in 11.3 present the solutions for transitioning VITA's technical infrastructure.

Change Management

Change Management is a critical component of any major transformation. Human acceptance and adoption of change represents the greatest risk to successful transformation. Fortunately, human response to change is well documented and reasonably predictable. The change adoption curve presented in **Exhibit 2.3.11-4** depicts the progression people experience when confronted with change, illustrating both successful and unsuccessful pathways. Understanding human response, and applying tailored tools and techniques to accelerate change adoption and avoid rejection by VITA employees, customers, and other stakeholders, is fundamental to our approach.

Our overall approach to change management is distinctive. Our experience proves that the technical and organizational aspects of the transformation must be closely aligned with a conscious program that addresses the human side of change. Thus change management is not an independent process—it is incorporated into each step of the transformation program.

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Exhibit 2.3.11-4 Change Adoption Curve
Understanding human response to change is fundamental to our approach.

Exhibit 2.3.11-5 illustrates our approach. The first phase is to align top management so they will successfully lead the change that is to follow. Phase 2 involves moving the change deeper into the organization by creating change owners, designers, and other "change champions" who will drive the change and energize others. In phase 3, change management occurs primarily on the front line, but also requires feedback mechanisms to assess change adoption and continually address potential barriers to change. This three phase approach will be critical for VITA's transformation as we work to drive change adoption through both employee and agency personnel at all levels.
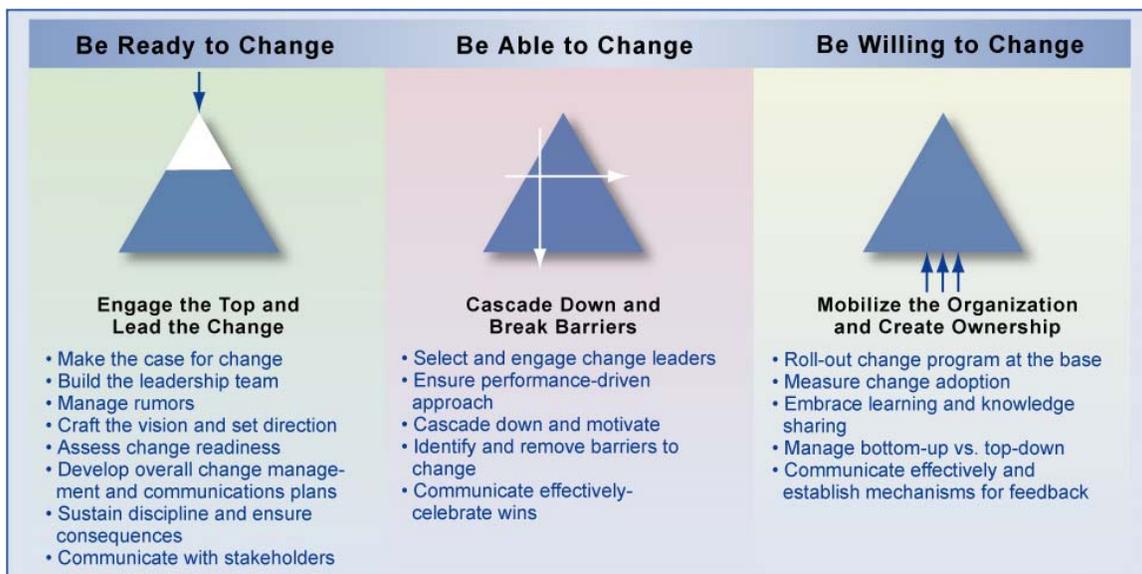
Exhibit 2.3.11-5 Change Management Approach
Change Management is critical to incorporate throughout the transformation.

2.3.11.1 Tailored Transformation Approach (PROPRIETARY & CONFIDENTIAL)

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2.3.11.2 Staffing for Communications and Organizational Change Management (PROPRIETARY & CONFIDENTIAL)
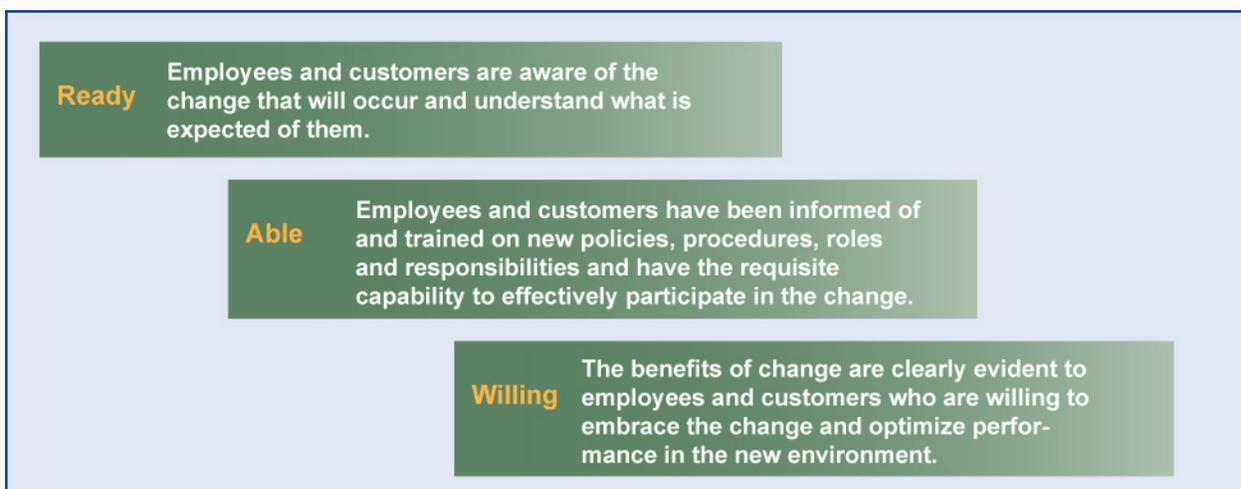
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2.3.11.3 Schedule for Communications and Organizational Change Management

As is highlighted in **Exhibit 2.3.11-11 (Redacted from Public Document – Proprietary and Confidential)**, the schedule for organizational change management and communications activities required to help VITA employees and customers become ready, able and willing to achieve sustained high performance in the new IT service environment is based on the technical deployment schedule. Our solution leverages the early establishment of a change and communications infrastructure, combined with discrete milestones to effectively transform to the new environment.

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2.3.11.4 Conclusion

The Northrop Grumman Team's approach to communication and change management provides a structured transformation framework that institutionalizes change and supports continual improvement. At the heart of our approach are active listening and two-way communications that enable rapid assessment of successes or issues, monitor the success of change, and support quick and appropriate response. Our approach integrates the building blocks of organizational structure, decision rights, motivators and information to build the capacity for sustained high performance and productivity for the partnership, resulting in employees who are ready, able and willing to perform in the new environment as depicted in **Exhibit 2.3.11-12 (Redacted from Public Document – Proprietary and Confidential)**.

Ready — Employees and customers are aware of the change that will occur and understand what is expected of them.

Able — Employees and customers have been informed of and trained on new policies, procedures, roles and responsibilities and have the requisite capability to effectively participate in the change.

Willing — The benefits of change are clearly evident to employees and customers who are willing to embrace the change and optimize performance in the new environment.

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Exhibit 2.3.11-12 Effective Organizational Change Management Has Demonstrable Results
Implementation of our comprehensive approach to communication and change management will result in a work force and customer base ready, able and willing to perform.