

### 11.3.14 IT Service Continuity and Disaster Recovery

**Requirement:** *The service environments for each Tower are to be maintained by Vendor, reviewed with VITA, updated by Vendor and made available to VITA on a quarterly basis. Provide timely creation, updating, maintenance and provision of all appropriate project plans, project time and cost estimates, technical specifications, management documentation and management reporting in a form/format that is acceptable to VITA for all Tower projects and major Service activities. VITA applications, associated infrastructure and voice communications services will receive IT Service Continuity and disaster recovery Services according to VITA business impact analysis (BIA) documentation. Coordinate with VITA during a VITA-declared IT Service Continuity and disaster recovery situation, a Commonwealth-declared Emergency requiring Vendor support of the Commonwealth EOC, as well as any Vendor-declared IT Service Continuity and disaster recovery situation per approved policies and procedures.*

**Why the Northrop Grumman Team?** The Northrop Grumman Team will transform VITA into a Commonwealth showcase for business continuity and disaster recovery readiness using the Disaster Recovery International Institute's methodology. VITA needs a centrally managed disaster recovery solution, providing a range of flexible options by solution location, and technology to ensure continuity of operations. The Northrop Grumman Team will use our partnership approach to help VITA provide the Commonwealth with disaster recovery strategies, policies and procedures,

#### 11.3.14.1 Approach Overview

The Northrop Grumman Team is committed to providing IT service continuity and disaster recovery services to ensure the continuous infrastructure, support and services necessary to recover VITA and their customers' business and IT functionality in the event of a declared disaster (e.g., fire, flood, acts of nature, or civil unrest).

Our IT service continuity and disaster recovery methodology is based on Northrop Grumman's proven innovative recovery solutions. Our approach resulting in improved recovery times, specific IT Service Continuity and Disaster Recovery policies, mature procedures that address all recovery processes, and results in robust disaster recovery plans. Using Information Technology Infrastructure Library/Information Technology Service Management (ITIL/ITSM) we will build quality assurance and continuous improvement into the IT service continuity and disaster recovery lifecycle.

The Northrop Grumman Team has many years of experience in business continuity, emergency management services, and disaster recovery planning. We have Disaster Recovery International Institute (DRII) certifications. We have demonstrated our disaster recovery knowledge with past and current customers recovering multivendor brands of mainframe, mid-range and Windows platforms. Northrop Grumman is a technology brand-independent provider for solutions and support services.

Northrop Grumman has been a key contributor to the success of multiple contingency planning and disaster recovery programs. One Northrop Grumman program was recognized as the "Best of Breed" for Contingency Planning among government agencies. The Smithsonian Institute of Technology recognized the Defense Finance and Accounting Service (DFAS) contingency planning program. This program established two alternate processing facilities and multiple processing options. Our DFAS support also included event/incident management guidelines and disaster declaration decision matrices. The overall Northrop Grumman/DFAS Contingency

Planning team has received various awards for their technical expertise and contributions, including recognition as one of the 14 best projects within the Federal Government.

We are constructing a customized facility in **Redacted** to support a VITA enterprise help desk and a back-up data center hot site. This hot site will be constructed to allow for any level of recovery requirement from automated failover, to recovery in hours, days or weeks based on business impact classification, affordability and best value to VITA's customers. The facility will also have workspace available for Command Center use, and service continuity and disaster recovery, if needed.

The Northrop Grumman Team will partner with VITA to provide a centrally-managed service continuity management solution to ensure continuity of operations and brand the Commonwealth as a model for IT service continuity and disaster recovery services for the public sector. Our VITA service continuity management and support services approach is based on the International Standards established by the DRII and Information Technology Service Continuity Management (ITSCM) practices.

The Northrop Grumman Team will recommend the right-sized continuity and disaster recovery support and services based on the criticality of each business application or system to provide protection of the Commonwealth's core business requirements, critical systems and IT investments.

#### **11.3.14.2 Detailed Solution for IT Service Continuity and Disaster Recovery**

Service continuity and disaster preparedness and recovery requires developing a comprehensive recovery process, which includes business continuity and disaster recovery planning, prevention, preparation, annual disaster recovery test exercises, and lifecycle improvements throughout the lifetime of the mission-critical business applications or systems.

In partnership with VITA, Northrop Grumman will use DRII standards and methodologies to:

- Improve existing or develop new Business Impact Analysis(s)
- Improve existing or develop new Business Continuity Plan(s)
- Improve existing or develop new Disaster Recovery Plan(s)
- Improve existing or develop new Emergency Response and Operations Plan(s)
- Improve existing or develop new Public Relations and Coordination Plan(s)
- Improve existing or develop Disaster Recovery and Emergency Response Awareness Program(s)

Each annual disaster recovery exercise will result in the delivery of a Disaster Recovery Exercise Report and Action Plan based on the outcome of the exercise. The Action Plan will address incidents encountered during the recovery exercise, procedural issues, and recommended restoration improvements. Action plan issues will be resolved to the Commonwealth's satisfaction. The Disaster Recovery Plan will be updated after each disaster recovery exercise.

Disaster recovery support and services will be provided for the internal Northrop Grumman applications and systems supporting our service delivery on the VITA program.

**Exhibit 11.3.14-1** outlines the features and benefits of our IT service continuity and disaster recovery solution.

Feature	Benefit
<ul style="list-style-type: none"> <li>➤ Customized Commonwealth of Virginia hot site</li> </ul>	<ul style="list-style-type: none"> <li>➤ Builds redundancy and recovery into the service continuity and technical solution from the ground up</li> <li>➤ Provides a customized Commonwealth of Virginia hot site <b>Redacted</b> <ul style="list-style-type: none"> <li>▪ Reduces costs of supporting multiple redundant disaster recovery solutions</li> <li>▪ Reduces cost of disaster recovery test exercise travel to Pennsylvania</li> <li>▪ Enables rapid response in the event of a crisis situation</li> </ul> </li> <li>➤ Reduces dependence on third-party hot site vendors that could be over allocated if a major national or regional disaster occurs</li> </ul>
<ul style="list-style-type: none"> <li>➤ Dedicated disaster recovery and business impact analysis specialists in a centralized organizational structure</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provides disaster recovery and business impact analysis specialists with in-depth experience in all facets of business impact analysis, business continuity planning, emergency management, and disaster recovery support and services                             <ul style="list-style-type: none"> <li>▪ Disaster recovery specialists</li> <li>▪ Certified business continuity planning specialists</li> </ul> </li> <li>➤ Increases efficiencies and strengthens disaster recovery capability for managing processes and common procedures throughout the Commonwealth</li> <li>➤ Provides disaster recovery support for Northrop Grumman’s internal applications</li> </ul>
<ul style="list-style-type: none"> <li>➤ Command Center; Service Continuity and Disaster Recovery Key Personnel Workspace</li> </ul>	<ul style="list-style-type: none"> <li>➤ Command Center Location workspace in <b>Redacted</b></li> <li>➤ Command Center Location workspace in <b>Redacted</b></li> <li>➤ Mission-critical employee workspace for use in the event of a Commonwealth location disaster</li> </ul>
<ul style="list-style-type: none"> <li>➤ ITIL/ITSM</li> </ul>	<ul style="list-style-type: none"> <li>➤ Replaces random and best efforts with order, predictable quality and optimization</li> <li>➤ Provides sustainable, repeatable, standardized practices across the enterprise</li> <li>➤ Increases supportability and reduces system support costs</li> <li>➤ Uses the same policy throughout the Commonwealth that drives common procedures and detailed processes</li> <li>➤ Uses repeatable, methodical disaster recovery approach which lowers risks during disaster recovery exercises and actual disaster recovery incidents</li> <li>➤ Results in predictable and improved recovery times</li> </ul>

**Exhibit 11.3.14-1 Service Continuity and Disaster Recovery Solution Features and Benefits**  
*Our Customized VITA Service Continuity and Disaster Recovery Solution provides an innovative enterprisewide solution delivered with a partnership approach that offers economic development to **Redacted**.*

**11.3.14.3 Approach for IT Service Continuity and Disaster Recovery**

The Northrop Grumman Team understands and accepts the VITA-defined Northrop Grumman vendor roles and responsibilities presented in VITA’s Appendix 1 to Schedule 3.3 of the Comprehensive Infrastructure Agreement Cross-Functional SOW Table 19, IT Service Continuity and Disaster Recovery Roles and Responsibilities.

The Northrop Grumman partnership solution supports the full spectrum of service continuity management and disaster recovery including the often overlooked or understated foundation—the business requirements—through and including emergency management operations. The proposed approach envelops the solution with a full-scale process lifecycle to ensure continuous

review, incorporation of improvements and updates throughout its lifespan. It includes international best-in-class DRII standards and methodologies, ITSCM structure and proven practices, and the Strohl business impact analysis, disaster recovery planning, and emergency management toolset to automate and document the solutions.

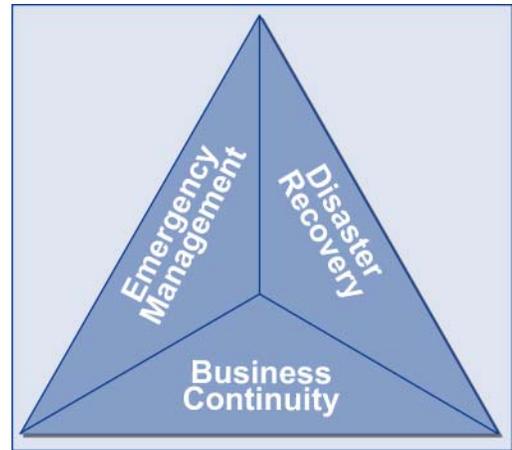
**Exhibit 11.3.14-2** shows the Service Continuity Elements.

Our service continuity foundation is built on business management practices, business needs, and business applications that support the continuous operation and recovery of the core business processes. The IT infrastructure (hardware, systems software and networks) and data center and hot site facilities are enablers that support the core business. Our strategy is to ensure business continuity, emergency management and disaster recovery function in harmony to provide a solid service continuity and cohesive, well-structured and executed recovery solution.

Northrop Grumman's approach to disaster recovery processes and procedures ensures full continuity of operations and assurance of service recovery of the data, hardware platforms, network operating systems, and third party software products. Our initial approach for the Commonwealth of Virginia is to adopt VITA's current policies and procedures and immediately perform an in-depth review of existing VITA disaster recovery policies and procedures and recommend improvements, as appropriate. When we bring disaster recovery testing in house **Redacted** we will apply DRII's proven standards and methodologies to develop and maintain detailed processes for monitoring, managing, and reporting on activities related to disaster recovery.

When an emergency occurs requiring more than a normal operational response, Northrop Grumman, VITA, and VITA customers will use documented procedures to outline the activities necessary in a response to the emergency. When an event requires increased centralized support or help from other teams in Northrop Grumman, the Commonwealth, or when media attention has intensified, the Emergency Management Plan will be invoked to provide an increased level of coordination and communications. The magnitude of an emergency situation determines the level of response required in order to resolve the problem or crisis. The intent of the Emergency Management Plan is to streamline the response and preparation processes. The goal in managing any emergency is to reach a level of heightened operating efficiency as quickly as possible. This increased efficiency will achieve prompt restoration of customer service, while protecting the safety and welfare of the public. The Emergency Management Plan establishes overall emergency response priorities.

The Northrop Grumman solution will use our proven approaches for IT service continuity and disaster recovery strategies. We will assist the Commonwealth with disaster recovery strategies, policies and procedures, transforming the current process into a showcase for business continuity. Business continuity, emergency management and IT are symbiotic in nature and are interconnected at every level (reference **Exhibit 11.3.14-2**).



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**Exhibit 11.3.14-2 Northrop Grumman's Service Continuity Elements**  
*Business continuity, emergency management and disaster recovery are interconnected.*

**Disaster Recovery Data Center Solution**—During the start-up and initial stages of transition of the contract, Northrop Grumman will continue to provide hot site and disaster recovery testing at SunGard for the “as-is” solution.

Northrop Grumman will use an exclusively designed data center in the **Redacted** to recover all critical and vital Commonwealth data, applications and systems. All mainframes and servers currently recovered on the SunGard contract provided in the base case will continue to be recovered on completion of **Redacted**. Northrop Grumman will also cooperate with VITA to assess the disaster recovery needs for all remote Commonwealth agencies and will negotiate the right-sized, best value solution for each situation.

**Use of ITIL/ITSM Proven Practices**—The Northrop Grumman Team will employ ITSCM proven practices to deliver high quality business continuity and disaster recovery services. As we integrate and deploy these practices, the Commonwealth will benefit.

### **ITIL Continuity Planning Model**

In today’s highly competitive and service-oriented business environment, organizations are judged on their ability to continue to operate and provide services at all times. ITSCM practices help provide standards and structure to manage an organization’s ability to continue to provide predetermined and agreed to levels of IT services to support the minimum business requirements following an interruption of service. This may range from an application or system failure, to a complete loss of the business premises. As such, ITSCM forms an integral part of the Business Continuity Management (BCM) process to ensure that IT services are provided.

The goal for ITSCM is to support the overall BCM process by ensuring the required IT technology and service facilities (including computer systems, networks, applications, telecommunications, technical support, and help desk) can be recovered within required and agreed to business timelines.

ITSCM focuses on the IT services required to support the critical business processes. The impact of a loss of a business process, such as financial loss, damage to reputation or regulatory breach, is measured through a business impact analysis, which determines the minimum critical requirements. The specific IT technical and service requirements are supported by ITSCM. The scope of ITSCM within an organization is determined by the organizational structure, culture and strategic direction (both business and technology) in terms of the services required and how they develop and change over time.

As organizations become more dependent on technology, which is a core component of most business processes, continued availability of IT is critical to their survival. This availability is retained by introducing risk reduction measures such as resilient systems, and recovery options including back-up facilities. Ongoing maintenance of the recovery capability is essential if it is to remain effective. This is achieved through:

- Rigorous Configuration Management, Change Management and review processes
- Organizational education and awareness
- Use of the latest technology and software tools
- Specific training for personnel involved in the process

➤ Regular testing

Northrop Grumman will identify business vulnerabilities, assess the impact of disruptions, develop an inclusive strategy to manage all risks, and implement a comprehensive disaster recovery plan and an emergency operations plan. Our approach is to standardize and customize disaster recovery procedures using relevant ITSCM practices for all critical business applications and systems.

**The Business Continuity Lifecycle**

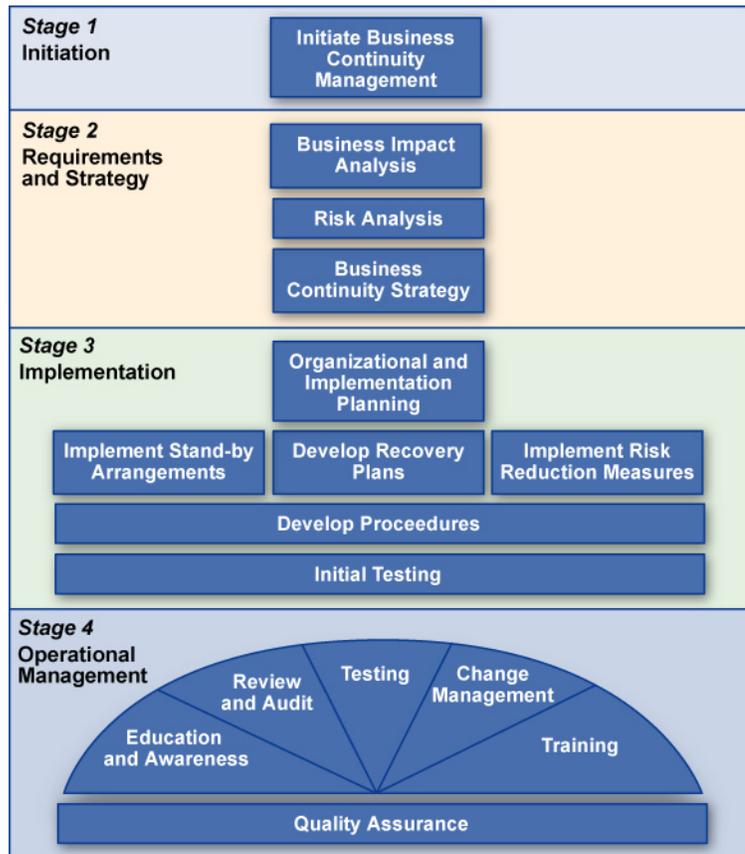
It is not possible to develop an effective ITSCM plan in isolation. The plan must support the requirements of VITA and VITA’s customers.

The four stages of the IT Service Continuity Lifecycle are outlined in **Exhibit 11.3.14-3**. It describes the ITIL continuity stages with emphasis on IT Service Continuity.

**Stage 1 – Initiation**

The activities to be considered during the initiation stage depend on the extent to which contingency planning has been applied within the organization. Some parts of the organization may have established individual continuity plans based on manual work-arounds and IT may have developed contingency plans for systems perceived to be critical. This is good input to the process; however, effective ITSCM is dependent on supporting critical business functions and ensuring that the available budget is applied in the most appropriate way. The initiation process covers the whole of the organization and consists of the following activities:

- Set policy
- Specify scope
- Define the project organization and control structure
- Create and agree to project plans
- Establish quality plans



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**Exhibit 11.3.14-3 Information Technology Service Continuity Management (ITSCM) Process Model**

*The ITSCM Process Model will be used to ensure all aspects of Service Continuity Management are properly initiated, analyzed, strategized, planned, and implemented, and that lifecycle operational management, awareness audits, testing, change adherence, and training are included in the quality assurance feedback loop.*

## Stage 2 – Requirements Analysis and Strategy

This stage provides the foundation for ITSCM and is a critical component in determining how well an organization will survive a business interruption or disaster and the costs that will be incurred. This stage can be split effectively into two sections:

- Requirements – perform business impact analysis and risk assessment
- Strategy – determine and agree on risk reduction measures and recovery options to support the requirements.

## Stage 3 – Implementation

Once the strategy has been approved, the business continuity lifecycle moves into the implementation stage, involving IT at a detailed level. The implementation stage consists of the following processes:

- Establish the organization and develop implementation plans
- Implement stand-by arrangements
- Implement risk reduction measures
- Develop IT recovery plans
- Develop standard operating procedures
- Execute initial tests

## Stage 4 – Operational Management

Once the implementation and planning has been completed there is a need to ensure that the process is maintained. This is achieved through operational management and includes:

- *Education and Awareness*—This should cover the organization and in particular, the IT organization, for service continuity-specific items. This ensures the staff is aware of the implications of business continuity and of service continuity, and considers them part of their normal working routine and budget.
- *Training*—IT may be involved in training the non-IT Business Recovery team members to ensure that they have the level of information needed to facilitate recovery.
- *Review and Audit*—Regular review of all of the deliverables from the ITSCM process needs to be undertaken to ensure that they remain current.
- *Testing*—Follows the initial testing needed to establish a program of regular testing, and ensures that the critical components of the strategy are tested at least annually, or as directed by senior management or audits.
- *Change Management*—Following tests and reviews and in response to day-to-day changes, update the ITSCM plans: ITSCM must be included as part of the Change Management process to ensure that any changes in the infrastructure are reflected in the contingency arrangements provided by IT or third parties.
- *Assurance*—The final process in the ITSCM lifecycle involves obtaining assurance that the quality of the ITSCM deliverables is acceptable to senior business management and that the operational management processes are working satisfactorily.

This approach will align well with the overall Northrop Grumman Team's planning, implementation and deployment of ITIL and ITSM practices, policies, and procedures for our Commonwealth of Virginia customer.

**Innovations.** Our innovations for the Commonwealth in the area of IT service continuity and disaster recovery support and services include:

- The hot site, back-up facility and redundancy for service continuity management are built into our VITA solution from the ground up
- A customized VITA help desk, back-up and recovery, and hot site located in **Redacted**
- A comprehensive business impact analysis, business continuity planning, and disaster recovery approach using:
  - ITSCM approach
  - DRII standards
  - Strohl Commercial-off-the-Shelf automated toolset

These innovations will provide service continuity management and disaster recovery that addresses and protects the Commonwealth's business processes, IT environment and technology investments.

**Northrop Grumman's Relevant Service Continuity and Disaster Recovery Experience and Past Performance**—The Northrop Grumman Team has vast experience in business continuity and disaster recovery planning. We have DRII certifications as well as ITIL/ITSM certifications. We have demonstrated our disaster recovery knowledge with past and current customers recovering multivendor brands of mainframe, mid-range and Windows platforms. Northrop Grumman is a technology brand-independent provider for solution and support services. We have summarized a few examples of our extensive disaster recovery experience below.

- *State of Arkansas, Department of Human Services*—In 2004, Northrop Grumman facilitated client/stakeholder sessions, captured valuable business critical information, provided detailed analysis, and delivered and published the Arkansas Department of Human Services Business Continuity and Contingency Plan (BCCP). The BCCP addresses the priority actions that will be taken by designated staff within the Arkansas Department of Human Services Offices and Divisions in the event their automated systems become unavailable to support their delivery of the state's critical business functions.
- *State of Alabama, Department of Human Resources*—The Northrop Grumman Albuquerque Data Center provides the Alabama Department of Human Resources full disaster recovery services for their Child Support Enforcement Program. This includes a complete and up-to-date disaster recovery plan and annual disaster recovery exercises. Our test exercise includes operating system restores, production database restores, network connectivity, and remote access and end-user testing. Over the past 5 years, we have reduced the recovery time objective from 48 to 24 hours. We accomplished this through the implementation of new procedures, disaster recovery software and more robust hardware. The improvements reduced the number of back-up tapes from 320 to 5 and reduced the actual recovery time from 11 hours to 4 hours. Our disaster recovery test exercise also includes network access between the hot site and the state of Alabama customers for end-user log on and testing on the recovered environment.

- *State of Texas, Texas State Data Center*—We provide disaster recovery services for the state of Texas with our Northrop Grumman data center team at the San Angelo, Texas, Data Center. Disaster recovery services include the management of back-ups and the recovery of mainframe and mid-range servers. Mid-range servers include Sun Solaris, AIX and Windows platforms. The mid-range recovery process uses a cascade approach. The first back-up server recovered spawns the recovery of other platform-dependent servers. The recovered servers, in turn, spawn the recovery of application servers all being recovered in tandem. This and other processes Northrop Grumman developed greatly reduce the server recovery time. Our disaster recovery test exercise also includes network access between the hot site and the state of Texas customers for end-user log on and testing on the recovered environment. Disaster recovery support and services are provided to 15 agencies.
- *Texas Department of Human Services Data Center Support*—Northrop Grumman is the Texas Department of Human Services (DHS) technology and operations partner who provides data center services. The data center is comprised of the functions and supporting activities necessary to deliver the processing, data storage and disaster recovery for DHS and its customers. This service is available 24 hours per day, 365 days per year. It is a highly visible contract. The Northrop Grumman Team monitors over 610 daily production jobs and 1,300 end-of-the month production applications that create deliverables for the economically disadvantaged and disabled clients for the state of Texas. This includes producing month-end medical IDs for 1.6 million clients, processing on-demand Medicaid eligibility, prescription drugs, nursing home benefits, electronic benefits transfers, emergency benefits, and finger print imaging. In addition, we monitor reports for DHS, and process a 16,000-person payroll for the state and produce related reports and W-2 forms. Support and services include operations, scheduling production jobs, backup and recovery, and disaster recovery.
- *Vought Aircraft*—Northrop Grumman's Services Agreement with Vought is a total technology solution that provides program management office, performance management, capacity planning, change management, enterprise architecture planning, information assurance, disaster recovery, hot site testing, and an integrated help desk. Our solution also includes hardware configuration, maintenance, and support; network engineering, monitoring, and security through a network operations center (NOC); asset management; remote access services to Vought's internal network and the Internet; and desktop and server management in a multisite distributed computing environment. In conjunction with these services, Northrop Grumman also provides mainframe ADP operations, storage, and security; infrastructure cable plant services, training services, basic voice and video teleconferencing, software systems development and support, voice services, procurement services, infrastructure improvement, and administrative and software development support.
- *Bank of America Contract for the U.S. Treasury's Financial Management Service (FMS)*—As contractor to Bank of America, Northrop Grumman IT performed a major Homeland Security/Continuity of Operations/Disaster Recovery Project for the U.S. Treasury's FMS involving up to 24 commercial bank lockbox (LB) processing sites throughout the United States. During the first 3 months, a comprehensive 90 page Continuity of Operations Plan (COOP) was developed for 11 IRS LB sites in time to meet the peak April 2002 tax season. The team assembled an auditable, Independent Verification & Validation (IV&V) Plan and conducted several tests of the plan prior to the April deadline. (These tests used "live" data, which had never been done before).

The team assisted the FMS in the establishment and oversight of 2 alternate processing facilities and a sophisticated dispersal option that were the cornerstone of the April 02 plan. This plan followed Treasury/OMB/NIST Standards, consisted of multiple alternative processing options, event/incident management guidelines, disaster declaration decision matrices, FMS reporting procedures, numerous call trees, and an extensive coordination effort with Treasury, Bank, IRS, USPS, and local emergency management officials.

The Strohl commercial-off-the-shelf (COTS) tool, Living Disaster Recovery Planning System (LDRPS), was used to automate and fully document the processes used throughout this program. The contract included both technical and management assistance through dedicated, on-site support (one person each) for Defense Finance and Accounting Service (DFAS) Arlington VA, Cleveland OH, Columbus OH, Denver CO, Kansas City KS, and Indianapolis IN, and site visit support for the 24 satellite DFAS locations.

DFAS has been recognized as the “Best of Breed” for contingency planning among government agencies. The Smithsonian Institute of Technology has recognized the DFAS contingency planning efforts and use of the LDRPS tool. The overall Northrop Grumman/DFAS contingency planning team has received various awards for their technical expertise and contributions, including recognition as one of the 14 best projects within the Federal Government during government FY 99.

- *Army Knowledge Online*—Northrop Grumman has worked very closely with U.S. Army Chief Technology Office government engineers and other contract engineers to design and build a premier fail-safe data storage and recovery system supporting the Army Knowledge Online (AKO) network. The system is engineered and built for an active/active operational scenario. The system provides not only backup and recovery systems, but also systems that can immediately share and assume the system load for real-time data sharing, back-up, recovery, and complete system fail over for operational continuity. This AKO disaster recovery services contract required an initial operational capability within 6 months and full operational capability in 12 months.

Northrop Grumman was also successfully tasked to design, develop and implement an interim emergency disaster recovery services solution at an alternate third site within 30 days at the start of the contract, due to the start of the war with Iraq. The active/active status was achieved ahead of schedule, and completely transparently to users. The disaster recovery solution provides continuous real-time data replication between the Chief Technology Office data center and the disaster recovery service site, and can support multiple facilities worldwide. Each subsystem, including mail, Oracle databases, Portal, and single sign-on was evaluated and designed by Northrop Grumman to optimize the enterprise across facilities. Global load balancing is used between facilities with centers of excellence each replicating data with the others. A best of breed enterprise management system monitors and maintains equipment, network and system status remotely, significantly reducing labor and operations and maintenance costs. In addition, we provide the AKO help desk support, composed of tools, data, telephony, and processes. Data relevant to the trouble ticket tracking system is replicated in active-active mode, along with the other data in the databases.

Northrop Grumman provided hardware, operating system software, application software, maintenance support, software license renewal, and technical support necessary for the data center to be replicated and mirrored at the disaster recovery site. The three primary disaster recovery locations provide active/active functionality. Disaster recovery is fully enabled for

Microsoft and Unix based platforms hosting numerous application owners. Northrop Grumman provided, integrated and is maintaining service level management, remote systems management, automated systems configuration management, and automated enterprise management solutions capable of operating at multiple sites. The processes and procedures were tailored to incorporate the legacy systems maintenance, and provided enhanced capabilities to integrate legacy systems into enterprise maintenance concept.

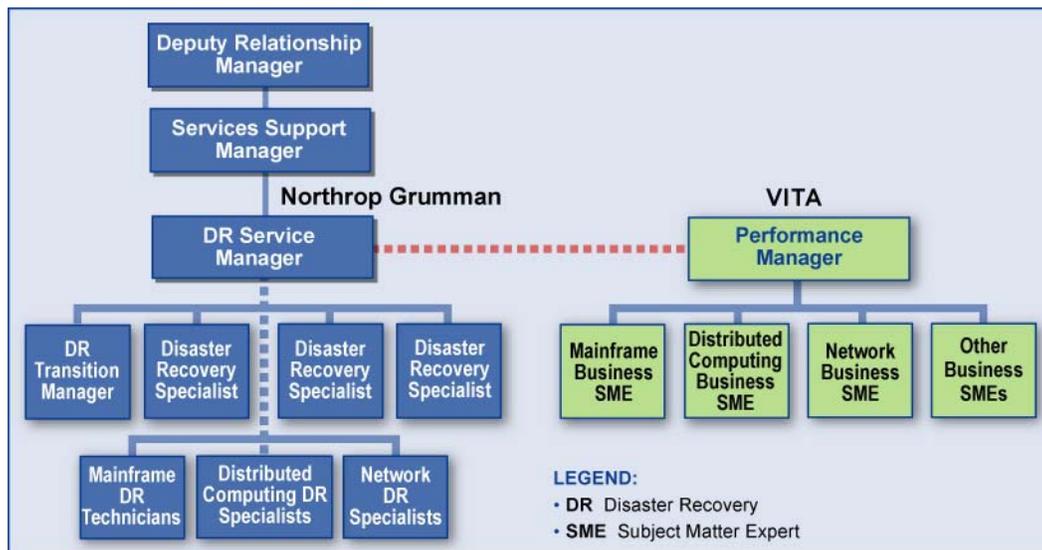
In addition, we performed testing, verification and validation of the systems and disaster recovery service to ensure equipment was functional and that the solution provided the desired results. We validated analysis and design architecture to prepare and finalize the enterprise management solution before implementation.

### 11.3.14.4 Staffing for IT Service Continuity and Disaster Recovery

#### *Staffing for IT Service Continuity and Disaster Recovery*

Northrop Grumman proposes a dedicated, qualified business continuity and disaster recovery team for the support of VITA’s service continuity and disaster recovery support and services.

The Northrop Grumman Team recognizes the importance of ensuring that the Commonwealth’s business functionality and investments in IT are supported through service continuity and disaster recovery planning and readiness. Our support and services will be provided to VITA and all Commonwealth of Virginia agencies. **Exhibit 11.3.14-4** shows the Northrop Grumman IT service continuity and disaster recovery organization chart.



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**Exhibit 11.3.14-4 Northrop Grumman IT Service Continuity and Disaster Recovery Organization Chart**

*Our service continuity management organization provides optimal communications between Northrop Grumman and the Commonwealth.*

As shown in Exhibit 11.3.14-4, organizational and programwide communications is important to this process. The Northrop Grumman disaster recovery services manager will work directly with VITA’s Disaster Recovery Performance Manager and, as appropriate, with all other relevant VITA Performance Manager(s). The Northrop Grumman disaster recovery service manager will participate in the various boards and committees that will provide governance and make decisions that will impact current or strategic technical and service support areas that affect

business continuity, IT service continuity, emergency management, and/or disaster recovery. There will also be close collaboration and coordination between the Northrop Grumman IT service continuity and disaster recovery team and the Northrop Grumman technical service delivery organizations (e.g., mainframe, distributed, networks, help desk, security). The disaster recovery service manager directs all business impact analysis studies, business continuity and disaster recovery strategy planning, coordinates with VITA on scheduling and supporting disaster recovery exercises, and oversees required VITA disaster recovery reporting. The disaster recovery service manager will be responsible for the overall disaster recovery team's oversight, leadership, direction, and support and services delivery. The disaster recovery service manager will be involved and will direct team members to assist VITA in IT service continuity, disaster recovery and emergency management activities, as requested by the Commonwealth. Northrop Grumman disaster recovery management and technical staff will also assist the Commonwealth with emergency management activities. This includes planning, procedures, ITSCM proven practices, and other activities relevant to this specialized and extremely important area of support and services. Northrop Grumman will hire an experienced leader with 4 or more years of specialized relevant business continuity and disaster recovery experience, and 12 or more years of IT experience.

The disaster recovery transition manager is accountable for managing the service continuity and disaster recovery transition activities. This person works in coordination with the disaster recovery service manager. As the Northrop Grumman Team and VITA begin the contract, the disaster recovery transition manager ensures a smooth transition emphasizing planning and coordination of the computer systems move to and start-up in **Redacted**. The disaster recovery transition manager will help ensure all **Redacted** equipment is properly configured and compatible with production equipment located at the **Redacted**. Throughout the transition period, this individual will ensure the readiness of the disaster recovery hot site located at the **Redacted**. Northrop Grumman will hire an experienced leader with 4 or more years of specialized relevant business continuity and disaster recovery experience, and 12 or more years of IT experience.

The disaster recovery specialists will have 3 or more years of experience in mainframe and server systems recovery, and 8 or more years of IT experience. They will be involved in the initiation and deployment of the 4 ITIL phases: initiation, requirements and strategy, implementation, and operational management. They will coordinate the technical details of each disaster recovery exercise, ensuring the successful recovery of the computer systems and support projects and activities as directed by the disaster recovery service manager.

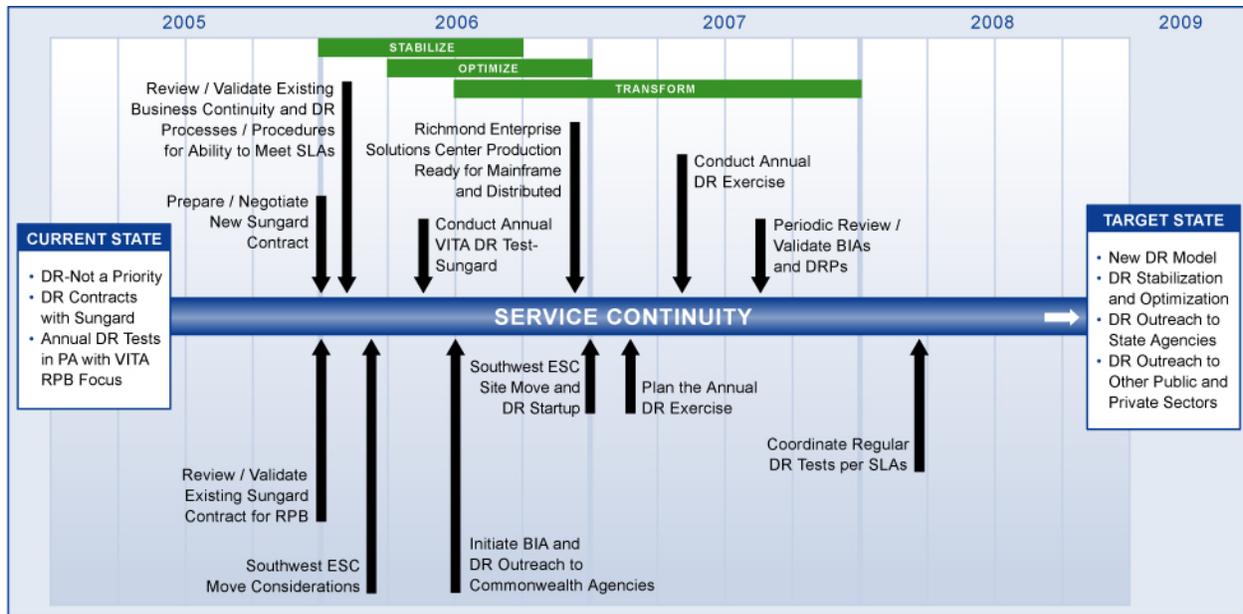
The disaster recovery team will work closely with the Cross Functional Services Office to ensure common processes, procedures and policies are implemented and fully documented across all teams. This level of collaboration is critical to achieve consistent delivery of service to VITA. The Northrop Grumman disaster recovery team will take the lead role in the development of the IT service continuity and disaster recovery processes for VITA. This approach will deliver the highest quality service as we transform VITA's environment. (See **Section 11.3.2.2** for a detailed description of the Northrop Grumman Team's Process Development and Maintenance Lifecycle.)

### 11.3.14.5 Schedule for IT Service Continuity and Disaster Recovery

Our consolidated disaster recovery roadmap in **Exhibit 11.3.14-5** outlines our strategy from contract start-up through transition, and highlights the major milestones in our IT service continuity and disaster recovery solution.

Upon contract start-up, through transition, the Northrop Grumman Team will work with VITA to accomplish the following:

- Review and validate current disaster recovery policies
- Conduct a gap analysis
- Recommend updates to current policies as appropriate
- Recommend new policies as appropriate
- Seek Commonwealth approvals
- Implement and deploy new and/or improved disaster recovery policies on approval by VITA
- Review and validate existing disaster recovery procedures
- Apply new and/or improved disaster recovery policies to all disaster recovery procedures
- Conduct gap analysis between new/improved policies and existing procedures
- Prepare new procedures needed based on gap analysis
- Seek Commonwealth approvals
- Review and validate existing back-up procedures per “as-is” applications
- Recommend updates as required
- Review off-site storage procedures
- Seek Commonwealth approvals
- Review and validate existing recovery procedures per “as-is” applications
- Recommend updates as required
- Seek Commonwealth approvals
- Initiate and Implement ITIL Service Continuity Management practices



**LEGEND:**

- SW ESC Southwest Enterprise Solutions Center
- DR Disaster Recovery
- DRP Disaster Recovery Plan
- SLA Service Level Agreement
- RPB Richmond Plaza Building
- BIA Business Impact Analysis

VITA 040\_r10

**Exhibit 11.3.14-5 IT Service Continuity and Disaster Recovery Roadmap**  
*Our IT service continuity and disaster recovery roadmap ensures continuity and recovery of mission-critical systems by our dedicated Team of experts*

We will use a phased approach for our overall service continuity management strategy. Our initial focus will be on the current “as-is” identified disaster recovery support and services solution. The next phase will include outreach to other VITA customers and Commonwealth organizations and agencies that currently do not have service continuity or VITA-supported disaster recovery. We will work with VITA to offer the Commonwealth agencies continuity services that may include business impact analyses, business continuity planning and a framework that will help define critical applications and systems that require disaster recovery support and services. The “as-is” VITA-supported service continuity and disaster recovery support and services identified in the base case are included in our base price. As we coordinate with VITA and offer our outreach strategy to the other agencies and organizations, we will negotiate a best value, right-sized offering for each proposed solution based on the required service level agreements (SLAs) and infrastructure required.

**Stabilization Phase**

During this phase, Northrop Grumman will review and validate the existing SunGard contract for accuracy and completeness. Based on due diligence findings, we will negotiate a new contract with SunGard, ensuring all Commonwealth agencies are covered. Our approach is to validate the existing disaster recovery plans and review the current business impact analysis report(s). Our review process will include close examination of the previous recovery exercise procedures.

During the stabilize phase, we will install and customize Strohl Systems software tools, which include the BIA Professional, LDRPS, and Incident Manager. Northrop Grumman will provide training for these software tools. We will coordinate and conduct the VITA disaster recovery exercise, at the SunGard facility. From this recovery exercise, we will update the recovery pro-

cess tasks for inclusion into the Strohl Systems automated software tool. Northrop Grumman will negotiate a new contract with Iron Mountain for delivery services and storage of backup tapes.

### Optimize Phase

In this phase, we will populate the Strohl Systems software databases with Commonwealth continuity and recovery information. Through interviews and analysis, we will further update the Strohl Systems tool with up-to-date and new recovery information. In this phase, we will perform disaster recovery outreach to agencies further defining the scope of business recovery. By the end of this phase, the Strohl Systems tool will be populated and ready to generate the first disaster recovery plan(s). During this phase, network tests between the **Redacted** and the Commonwealth's new hot site facility will be conducted.

### Transformation Phase

This phase will move disaster recovery activities to the **Redacted** location. The new Commonwealth hot site will be populated with mainframe, Unisys and distributed computing servers. Technical reviews and tests of the hot site equipment will be performed. Hot site disk subsystems will be connected via network lines to the primary disk subsystems located in **Redacted**. Tape subsystems will be tested to ensure compatibility. Unit testing will be conducted to ensure readiness and compatibility.

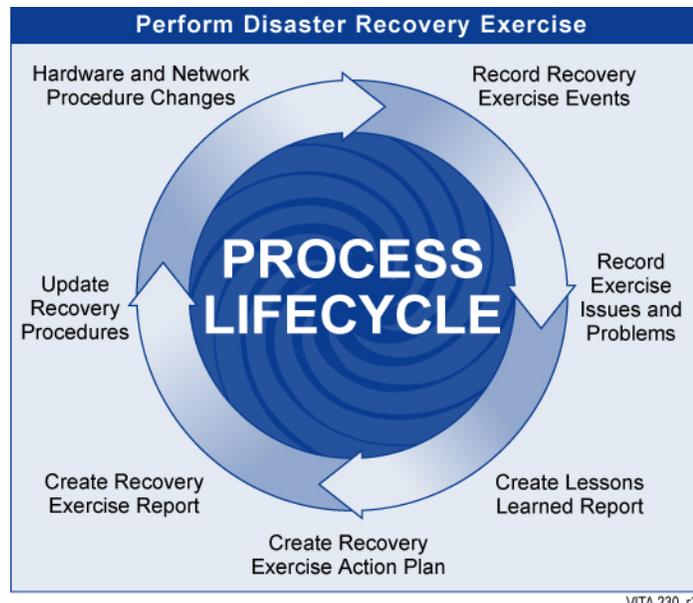
During the transformation phase, Northrop Grumman will conduct the first disaster recovery exercise at the newly built hot site in **Redacted**. Our approach will be to create lessons learned and action plans for this recovery exercise. Information from these reports will be used to update the Strohl Systems databases. Newly published disaster recovery plans will be distributed to the appropriate Commonwealth and Northrop Grumman recovery teams. The Northrop Grumman Team will use our continuous improvement process to improve recovery procedures and plans.

The transformation will continue with the establishment of regularly scheduled business continuity, emergency management and disaster recovery meetings. With VITA's collaboration, Northrop Grumman will publish a service continuity/emergency management/disaster recovery meeting schedule. Information collected from these meetings will be incorporated into the Strohl Systems tool as appropriate, increasing the quality of the business continuity and disaster recovery information.

The disaster recovery process lifecycle in **Exhibit 11.3.14-6** illustrates the continuous improvement process used to ensure accuracy and quality assurance are built into the disaster recovery support and services delivery.

## Process Improvement

Our approach is to continually improve all aspects of service continuity, business continuity, emergency management, and disaster recovery (refer to **Exhibit 11.3.14-6**). Using Northrop Grumman's continuous improvement process, disaster recovery plans will be updated using lessons learned reports and action plans derived after each test. At regularly scheduled meetings, we will solicit disaster recovery change information from the Commonwealth subject matter experts and Northrop Grumman technical teams. The disaster recovery manager will attend technical change meetings to acquire information that may affect recovery of business applications. The continuous improvement approach will use all avenues to validate and improve the recovery processes.



**Exhibit 11.3.14-6 The Disaster Recovery Process Lifecycle**

*We build the continuous evaluation and process improvement approach into our disaster recovery process lifecycle.*

We will analyze the status of remote server recovery by location. The disaster recovery analysis includes the review of data back-up procedures, back-up software, off-site storage processes, recovery procedures, and plans. Any hot site contracts and recovery requirements will be reviewed. At the Commonwealth's option, remote server recovery can be moved to the **Redacted** (the Commonwealth's hot site). Other uses of the **Redacted** for remote server recovery will be reviewed with each agency by location. Based on Due Diligence data we will recommend the recovery option that properly meets the needs of the remote locations.

A phased approach to remote server analysis could be based on locations having the highest number of servers.

### 11.3.14.6 SLAs and Metrics for IT Service Continuity and Disaster Recovery

Northrop Grumman will work in partnership with VITA and VITA's customers to establish the recovery class for each business application. Recovery class is derived by analyzing the business application, the recovery point objective, recovery time objective, and the technology required to meet these objectives. The Northrop Grumman solution will be driven by ITSCM-proven practices for business continuity management, improved disaster recovery efficiencies, reduced risks, and increased effectiveness and quality of disaster recovery services.

Northrop Grumman will continue using SunGard recovery services during the transition phase to provide continuous disaster recovery protection during the build-out of the **Redacted**. During the transition phase disaster recovery Service Levels will adhere to VITA's current 72 hour Recovery Time Objective for the critical systems as outlined in **Exhibit 11.3.14-7**. Our approach is to use the startup and transition phases to review and validate all phases of the existing recovery processes. We will conduct a review of all current and proposed critical system business impact analyses to better understand the disaster recovery needs of VITA and their

customers. The Northrop Grumman team will collaborate with VITA and VITA’s customers to validate critical business applications requiring recovery services.

BIA Application Rankings	Recovery Time Objective (Hours)	Minimum Performance % All SOWs	Commonwealth Application Recovery Classifications		
			Critical Current Services	Critical Enterprise Services	Outreach
Class 1	4	98%			
Class 2	24	98%			
Class 3	48	98%			
Class 4	72	98%	RPB Mainframe Systems Unisys System UNIX/Windows Servers VDACS <sup>1</sup> Mainframe	TBD	
Class 5	96	98%			
Class 6	168	100%			

<sup>1</sup> Virginia Department of Agriculture and Consumer Services

**Exhibit 11.3.14-7 Transition Phase Critical System Service Level Agreements**

*Our proposed transition phase disaster recovery time objectives and Service Level Agreements for critical systems based on due diligence data.*

Once the production systems have been successfully moved to the **Redacted** and the backup infrastructure is fully operational in the **Redacted**, it will become the hot site. The **Redacted** will have available workspace for key VITA and business team members who will be involved in the recovery process. Once this new location has successfully hosted a disaster recovery test, we expect to adhere to the following industry best practice Service Level Agreement delivery for the identified critical systems and services based on BIA Application Rankings and Recovery Classes outlined in **Exhibit 11.3.14-8**.

An overview of VITA’s proposed recovery strategy, built from the ground up with two enterprise solution centers is illustrated below in **Exhibit 11.3.14-9**.

**Redacted**

BIA Application Rankings	Recovery Time Objective (Hours)	Minimum Performance % All SOWs	Commonwealth Application Recovery Classifications		
			Critical Current Services	Critical Enterprise Services	Outreach
Class 1	4	98%		Network Services <sup>2</sup>	
Class 2	24	98%	Mainframe Systems Unisys System UNIX/Windows Servers		
Class 3	48	98%			TBD <sup>3</sup>
Class 4	72	98%	VDACS <sup>1</sup> Mainframe		TBD <sup>3</sup>
Class 5	96	98%			TBD <sup>3</sup>
Class 6	168	100%			TBD <sup>3</sup>

<sup>1</sup> Virginia Department of Agriculture and Consumer Services

<sup>2</sup> Data Network Recovery is within 1 second

<sup>3</sup> TBD = To be Determined

**Exhibit 11.3.14-8 Post Transition Phase Service Level Agreements**

*Our post transition phase disaster recovery Service Level Agreements for critical systems improve when the hot site services are provided from the new **Redacted***

Critical application data is continuously synchronized between the solutions centers (Line 3). Copying vital data between the primary and hot site locations ensures recovery of critical application systems within 4 hours. The network is designed for high reliability and rapid recovery of critical data in the event of a prolonged outage.

All OC-3 and OC-12 circuits employ synchronous optical networking (SONET) ring service for reliability. The ring topology of SONET ring service continually monitors service quality, detects any failure or degradation and automatically self-heals around a point of failure via a protect path to ensure uninterrupted transmission flow. Rerouting is accomplished within 50 milliseconds. Failover from network problems or disaster recovery situations can be quickly managed.

Northrop Grumman will use Iron Mountain's off-site vaulting for the storage, rotation and retrieval of all tape media. Using Iron Mountain will effectively move back-up tapes off-site through daily rotations, making them available to VITA and Northrop Grumman teams for use in the event of a disaster recovery or recovery exercise scenario.

Our approach is to deliver a comprehensive service continuity and disaster recovery solution by integrating the enterprise solutions centers. The enterprise solutions centers are tightly coupled to provide the ability to recover critical applications quickly. The e-mail exchange servers are coupled together at each solutions center location, providing exceptional recovery speed. Mainframe and server disk data is continuously synchronized between the solutions centers to ensure a swift recovery.

Building and integrating the recovery process into the solution from the ground up ensures seamless recovery and superior network and computer redundancy while reducing costs, and provides the robustness necessary for adherence to SLAs and exceptional service recovery times.

**Redacted**

**Exhibit 11.3.14-9 An Overview of Northrop Grumman's Proposed Total Business Recovery Solution**

*We will build the VITA recovery strategy and technology solution into our dual enterprise solutions center approach.*

**11.3.14.7 Risk Management for IT Service Continuity and Disaster Recovery**  
**(PROPRIETARY & CONFIDENTIAL)**

The Northrop Grumman Team has provided very specific solutions to our mitigation of the Commonwealth's disaster recovery risks that are identified in the business continuity and disaster recovery risk management strategy table below. Our customized disaster recovery solution for the Commonwealth will greatly reduce disaster recovery risks, improve service continuity management, offer deployment of VITA's disaster recovery and service continuity solutions, and lower costs. **Exhibit 11.3.14-10** shows our business continuity and disaster recovery risk management strategy.

**Redacted**

**Exhibit 11.3.14-10 Northrop Grumman's IT Service Continuity and Disaster Recovery Risk Management Strategy**

*Our IT service continuity and disaster recovery risk management strategy will lower existing risks and position the Commonwealth with a solid, long-term approach.*

The Northrop Grumman risk management encompasses insights gained from our VITA due diligence effort and our experience in disaster recovery technologies, solutions, and experience with other customers. **Exhibit 11.3.14-10** demonstrates our knowledge of disaster recovery risks and our ability to provide proven and sound disaster recovery solutions.

**11.3.14.8 Recommended Best Practices**

IT service continuity and disaster recovery exceptions, as well as our industry best practice recommendations to the Statement of Work, are shown below.

**Exhibit 11.3.14-11** highlights our recommended best-value approach for the disaster recovery back-up strategy.

6.1	Solution Requirement Cross-Functional Services	Industry Best Practice	Recommended Best-Value Approach
6.1	<p><b>Disaster Recovery</b> 4.0 Back-up Data Center Requirements (Schedule 4, Data Center Facilities Requirements) “All Systems within the Primary Data Center shall be designed to accommodate electronic vaulting as a means to store disaster recovery data at the Back-up Data Center. The Back-up Data Center facility shall not house any physical tape or other “hard” media, and no transport of media will be required between the Primary Data Center or any eligible customer site and the Back-up Data Center for IT service continuity and disaster recovery data.”</p>	<p>For enterprise-critical applications such as law enforcement, finance, revenue producing systems, and messaging, disk-to-disk<sup>1</sup> disaster recovery is recommended. For applications vital to the enterprise, disk-to-disk may be recommended after thorough analysis. Applications less vital to the enterprise can be recovered using high-speed and high-density<sup>2</sup> tape subsystems. All applications should be backed up using stable and predictable tape technology. <sup>1</sup> Disk-to-disk solutions need to be selected based on Recovery Point Objectives and available technologies. <sup>2</sup> High-density tape subsystems connected via 1 Gbit channels/paths using tape media approaching 1TB capacity.</p>	<p>Develop recovery classes based on the critical nature of the business application. Recovery classes are derived by analyzing the business application, recovery point objective, recovery time objective, and technology required to meet these objectives by conducting or validating existing business impact analyses. Recovery classes provide the Commonwealth a cost effective method to manage service continuity costs. Northrop Grumman plans to use traditional tape back-up and restore methods. High-density tape subsystems connected through 1 Gbit channels or paths will be installed. Our solution will include the use of high-density tape media.</p>

**Exhibit 11.3.14-11 Our Recommended Best-Value Approach for the Disaster Recovery Backup Strategy**

**Exhibit 11.3.14-12** highlights our recommended best-value approach for customizing a Disaster Recovery Plan.

3.9	Solution Requirement Comprehensive Infrastructure Agreement (CIA)	Industry Best Practice	Recommended Best-Value Approach
3.9	<p><b>Disaster Recovery Plan</b> Comprehensive Infrastructure Agreement (CIA) Schedule 3.9, Disaster Recovery Plan [To be</p>	<p>Northrop Grumman recognizes the need for a Disaster Recovery Plan for the Commonwealth. We also recognize the need to further review the Commonwealth’s business impact analysis and study other</p>	<p>Northrop Grumman has provided a Disaster Recovery Plan outline for the Commonwealth in the proposal. We will provide completed Disaster Recovery Plan(s) after reviewing the Commonwealth’s business impact analy-</p>

provided as part of Vendor's Detailed Proposal]	agencies and understand their disaster recovery needs.	ses and completing VITA and agency disaster recovery studies.
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**Exhibit 11.3.14-12 Our Recommended Best-Value Approach for Customizing a Disaster Recovery Plan**

### 11.3.14.9 Disaster Recovery Plan

The Northrop Grumman Team provided a comprehensive disaster recovery plan overview using DRII standards. DRII was founded in 1988 to develop a base of knowledge in contingency planning and the management of risk. We know from experience the DRII disaster recovery plan overview will more than meet the Commonwealth's disaster recovery plan requirements.

We will complete the Commonwealth business impact analysis review and disaster recovery analysis during the first several months of the transition. We will collaborate with the Commonwealth to review and validate the existing business continuity and disaster recovery procedures. We will work with the VITA manager(s) and staff to validate our findings.

The Northrop Grumman Team builds quality and an emphasis on details into our customized disaster recovery procedures. An example of a Software License Code Procedure is in **Appendix A-11.3.14-2**. We pride ourselves on the details and structure that are fully deployed in our disaster recovery documentation. Benefits to our customers from the structure and documentation processes we use are as follows:

- Each procedure includes a unique purpose statement.
- Each procedure includes assumptions and dependencies.
- Each procedure is detailed enough so a peer or coworker can perform the recovery without assistance to prevent a single point of failure due to human resource unavailability.

### 11.3.14.10 Disaster Recovery Test Results Report

The Northrop Grumman Team has included a sample Disaster Recovery Test Results Report in **Appendix A-11.3.14-3**.

The Disaster Recovery Test Results Report includes a narrative account of the following:

- Test Objectives
- Recovery Point Objectives
- Secondary Objectives
- Lessons Learned by Category:
  - Major
  - Significant
  - Minor
- Disaster Recovery Restoration Overview Flow Diagram
- Disaster Recovery Timeline
- A Description of the Major Recovery Steps and Their Results
  - Problems Encountered
  - Lessons Learned
- User Test Objectives
- Conclusion

➤ Acronym List

### 11.3.14.11 Advantages

There are many advantages to having an in-state recovery data center, as proposed by the Northrop Grumman Team in the **Redacted**. These advantages greatly outweigh traditional hot site solutions provided by IBM and SunGard. The proposed VITA and Northrop Grumman **Redacted** includes the following benefits:

- Close proximity to
  - VITA
  - VITA's customers
  - Emergency management coordinators
  - Disaster recovery test exercise participants
- Cost containment or cost reductions
  - More disaster recovery staff can participate in disaster recovery test exercises or disaster recovery incident recovery
  - Reduced VITA Team disaster recovery travel costs
  - Reduced VITA Team disaster recovery travel time
  - Increased test time per disaster recovery test exercise
  - Superior overall value
- Other benefits
  - Hot site services in Virginia for the Commonwealth of Virginia
  - Flexible test exercise schedules
  - Pre-configured hardware platforms built exclusively to your defined hot site requirements
  - Dedicated Northrop Grumman disaster recovery specialists who know VITA and VITA's Disaster Recovery and Business Continuity Plans
  - Business recovery key personnel workspace
  - Command Center availability in both the **Redacted**
  - IT service continuity, emergency management and disaster recovery are built into the solution from the ground up

The closer **Redacted** location reduces the logistics effort and provides more time for the staff to focus on the disaster recovery test exercise itself, not juggling travel schedules, waiting in airport security lines, or missing test exercise start-ups due to flight schedule delays. These advantages are seldom found in IBM and SunGard business recovery sites.

The new VITA and Northrop Grumman **Redacted** can provide the opportunity for the Commonwealth to exercise special one-time or special recovery tests. These are particularly valuable when a quick test could confirm a recovery issue or solidify a new approach. Quick one-time recovery tests are available through traditional providers for an additional fee.

Using our **Redacted**, VITA will have the option to schedule the in-scope disaster recovery tests anytime during the year without incurring additional charges or working around a hot site vendor's heavily booked schedule.

There are advantages to using an exclusive recovery data center. These advantages greatly outweigh traditional IBM and SunGard hot site solutions. Advantages include preconfigured hardware platforms based on your defined hot site solution needs. Traditional hot site providers use costly and complex switching equipment to create custom hardware configurations. They

must be able to reconfigure their hardware to match each customer's unique hardware configuration. Using pre-configured hardware platforms provides flexible scheduling and disaster recovery exercise planning rather than competition with other hot site customers for the exact hardware configuration required on VITA's specific choice of test dates.

Scheduling test time is easier and more flexible with the VITA and Northrop Grumman **Redacted**. Traditional hot site providers require test time to be scheduled sometimes a year in advance. Northrop Grumman's approach as the Commonwealth's recovery data center also brings the benefit of reasonable requests for test time extensions during the test without incurring additional charges. Not true with traditional hot site providers.

Your Northrop Grumman partnership solution supports the full spectrum of service continuity management and disaster recovery including the often overlooked or understated foundation—the business requirements—through and including emergency management operations. The proposed approach envelops the solution with a full-scale process lifecycle to ensure continuous review, incorporation of improvements and updates throughout its lifespan. It includes international best-in-class DRII standards and methodologies, ITSCM structure and proven practices, and the Strohl business impact analysis, disaster recovery planning and emergency management toolset to automate and document the solutions.

#### **11.3.14.12 Conclusion**

In summary, Northrop Grumman's **Redacted** solution offers a superior value over the traditional hot site solutions provided by IBM and SunGard. Our IT service continuity and disaster recovery methodology and approach will deliver a true partnership between Northrop Grumman and VITA. The Northrop Grumman Team's approach and partnership approach will brand the Commonwealth as a model for IT service continuity and disaster recovery services for the public sector. It will support VITA's need for service continuity and disaster recovery support and services that will provide the highest levels of systems continuity availability across the Commonwealth.