



Comprehensive Infrastructure Agreement Amendment Approval Form

Contract Between:

Northrop Grumman Information Technology, Inc.
7575 Colshire Drive
McLean, VA 22102-7508

and

The Commonwealth of Virginia
11751 Meadowville Lane
Chester, VA 23836

Contract Number	VA-051114-NG
Amendment Number	50
Section(s) of CIA Referenced – Identify section(s) of CIA modified, including Attachments and Schedules	CIA Schedule 4 “Data Center Facility Requirements” CIA Addendum 1 to Schedule 4 “Description of Facilities”
Description of Approved Contract Change – Provide a brief description of contract change	Change CIA language to reflect changes agreed upon during the construction of the CESC Facility which differs from original language in CIA Schedule 4 and its Addendum 1. Amendment also needed to clarify the requirements for SWESC.



In accordance with Section 27.5 Amendments, and pursuant to the mutual agreement of the parties, this AGREEMENT is modified as follows:

The following paragraphs of CIA are hereby modified as follows:

All terms, conditions and provisions of the original Agreement, remain unchanged except as specifically noted herein.

**SCHEDULE 4
TO THE
COMPREHENSIVE INFRASTRUCTURE AGREEMENT
Data Center Facilities Requirements**

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Data Center Facilities Requirements

1.0 Data Center Facilities Services

This Schedule describes the overall activities and Services that are required to be provided to provision, maintain and manage the Data Center facilities where the Commonwealth's centralized IT computing infrastructure and management operations solution will reside and be supported by Vendor. At a minimum, Vendor shall provide facilities equal to or better than a Tier 3 data center facility. At any time, Vendor may upgrade the facilities in order to provide increased redundancy, security and efficiency. Vendor may not downgrade the facilities in any way that will reduce the redundancy, security or efficiency as described in this Schedule. Vendor shall maintain facilities during the Term of the Agreement to ensure reliable, secure Systems and a safe and efficient workplace. Vendor will make necessary upgrades and

changes to the facilities to accommodate any new technology, equipment, configurations, and staffing necessary to fulfill the Service requirements of future contract modifications.

Vendor will be responsible for relocating or moving servers, networks, storage, other equipment, Services, personnel and related items from the Commonwealth's existing Data Center located at 110 S. 7th Street, Richmond, VA. (hereinafter, the "RPB Data Center"), and other Commonwealth Locations as reasonably necessary, to a new Data Center facility to be mutually agreed upon by the Parties. Any such Data Center moves will be completed within a timeframe and downtime period for critical applications that is acceptable to the Commonwealth.

Vendor shall not physically move the existing Commonwealth IT infrastructure components to a Vendor IT hosting facility other than the one specified in this SOW without prior written consent from VITA.

1.1 RPB Data Center Relocation Requirements

Vendor shall relocate the existing RPB Data Center to a mutually agreed upon new Data Center facility including all computing infrastructure and all personnel (VITA and Vendor) to allow VITA to vacate the RPB facility on or before March 1, 2008. Vendor shall develop and recommend a written transition and migration plan for the RPB Data Center, which shall be presented to VITA for review and approval. Vendor shall optimize the implementation and migration to ensure there is no disruption of service and to minimize the overall costs to the Commonwealth. (Amendment Number 10)

1.2 Physical Site

Vendor has attached Addendum 1 to this Schedule 4, which describes more fully Vendor's solution to meet the following requirements.

1.2.1 Hardened Site

The Vendor Commonwealth Enterprise Solutions Center (CESC) facility housing the primary VITA IT Data Center solution must meet numerous physical criteria, ranging from Tier 3 or Tier 4 standards (as defined by The Uptime Institute) to local Uniform Building Code ("UBC") seismic specifications. The Vendor Southwest Enterprise Solutions Center (SWESC) facility housing the backup VITA IT Data Center solution must meet numerous physical criteria, ranging from Tier 2 or Tier 3 standards (as defined by The Uptime Institute) to local Uniform Building Code ("UBC") seismic specifications.

The exterior walls shall be made of double reinforced concrete and shall be anonymous, with no identifying signage outside the CESC building. The SWESC building is not limited with regard to signage. Bollards or other similar barriers shall be placed around the perimeter of facilities to prevent ground-based vehicles weighing up to 15,000 pounds and going up to 30 miles per hour from penetrating an exterior wall of the Data Center portion of the facilities as well as the office space. External mechanical or equipment yards must be secured by fences and other acceptable barriers such as post and cable, concrete safety bollards, or boulders, and must be under 24-hour motion-sensitive video surveillance.

Conduits and exterior walls must be tightly sealed to prevent moisture intrusion. Inside the facilities flooring must be constructed with minimum live load criteria of 150 pounds per square foot ("PSF").

1.2.2 Power

The entire electrical system in each Vendor-provided and managed Data Center shall have multiple levels of built-in redundancy to enable the Commonwealth to have continuous operations of its centralized IT Services.

Power will enter the CESC Data Center facility via two services from the local electric utility and shall be configured as required to support the Commonwealth IT infrastructure requirements. In addition, Vendor shall provide redundant power distribution throughout the data center. The overall electrical system shall be 2N redundant and each component within the system must be N+1 redundant. The incoming power will feed into two busses, Bus A and Bus B, providing the option for diverse power distribution to the floor areas within the Data Center environment. Power will enter the SWESC data center back-up facility via one primary source, but will have N+1 UPS and generator systems.

Other power system specifications at CESC and SWESC are to include:

- Isolation K factor transformers used for 480 volt IPS to 208/120 volt
- K factor of K13
- 80 degrees Centigrade rise
- Copper winding
- DC system fuse protection
- 48-volt delivery via fuse panels

1.2.2.1 UPS and Generator Systems

Vendor shall design, implement, maintain, monitor, test, and manage an Uninterrupted Power Supply ("UPS") power backup system that includes onsite battery and electrical generation backup power sources, which will be automatically initiated in the event of an interruption or failure of the primary power source(s) that will ensure a continuous, uninterrupted source of electrical power to the Data Center facilities and the Commonwealth IT infrastructure equipment. Power will be continuously monitored via the Automated Logic Control system, and automatic throw-over switches will handle all changeovers from commercial power to generator-supplied power. Once the generator logic control system senses a power interruption, the generators must be online within nine (9) seconds.

This backup electrical power system shall be powered by diesel generator units located in a secure, protected equipment yard on site at the Data Center facilities. UPS batteries can sustain AC power supplies under full load. Redundant, on-site fuel tanks will provide 48 hours worth of generator fuel. To help supply sufficient fuel, Vendor shall maintain a minimum of two fuel refill contracts with separate fuel providers. Contract terms with these two fuel suppliers shall include a preferred delivery contract clause with four-hour delivery response time.

UPS and generator systems will be tested on a weekly basis and run under full load conditions twice annually. Vendor shall test the UPS environment on a weekly basis and run

under full load conditions twice annually to ensure that they function as designed. Based on the results of these tests, Vendor shall upgrade generator and battery capacity as needed.

1.2.2.2 Electrical Power

Vendor shall provide the Data Center facilities with conditioned AC power delivered via parallel, redundant UPS systems. Power quality monitoring will be done by Vendor to protect the Commonwealth equipment and prevent data loss by eliminating surges and other irregularities in power.

Power distribution systems post-Transition shall be designed to meet electrical power draw necessary for the Commonwealth Systems environment.

1.2.3 HVAC

Vendor shall provide, maintain, and manage environment conditions within the Data Center facilities, which will provide adequate heating, ventilation and air conditioning ("HVAC") in order to minimize downtime due to equipment failure. Vendor shall ensure that HVAC controls are put in place to provide appropriate airflow, temperature, and humidity and such HVAC controls will be designed according to N+1 redundancy specifications.

Vendor shall monitor the mechanical systems supplying the HVAC Services both on site within the Data Center facilities and from a remotely managed operations center in order to provide additional protection for the Commonwealth's infrastructure. Vendor will maintain documented procedures for routine maintenance on the HVAC equipment and will maintain service contracts with local vendors that specify a maximum four-hour response time for emergency service.

Vendor will target a consistent temperature of 70° F or 20° C (+/-2° F) in the Data Center computing equipment areas, with a relative humidity of 45% (+/- 5%). Air conditioning is to be provided through overhead or subfloor ducts by means of a hydronic chilled-water closed-loop system that will feed multiple air-handling units. There will be two independent primary/secondary pump systems for chilled water, each of which is capable of handling the total cooling needs of the Data Center facility.

Following are the environmental parameter targets for the Data Center facilities governed by this Agreement.

Table 1. Environmental Parameter Targets

68° to 72° F	Mainframe and Server Area Temperature (+/-2° F)
45% Relative Humidity	Mainframe and Server Area Humidity (+/- 5%)
72° to 76° F	Office Area Temperature
20% - 55% Relative Humidity	Office and storage areas Humidity
77° F	Battery Rooms; No Humidification
68° to 85° F	Electrical/UPS Rooms; No Humidification
60° F Min. Ambient Temp. + 10° F Max.	Mechanical Rooms
50° F Min. Ambient Temp. + 35° F Max.	Generator Rooms

1.2.4 Fire and Flood Protection

1.2.4.1 Advanced Fire Detection and Suppression

Vendor will install, monitor, maintain, and manage an advanced fire detection system within the Data Center facilities that continuously samples the air for any indication of fire and warns on-site staff of potential fire hazards, initiating extensive and localized emergency procedures to extinguish any fire at the source. In addition, Vendor will take the proper precautions and implement the proper industry standard safeguards to ensure unnecessary activation of fire-suppression equipment.

Vendor shall ensure that the Data Center facilities are protected with a dual-alarmed, dual-interlock, multi-zoned, dry-pipe, water-based fire suppression system armed with sensory mechanisms ("HSSD") to sample the air and give alarms prior to pressurization.

This system must be kept pressurized and filled with air (not water) to enable system leak detection. In order for the system to trip, multiple cross-linked events (heat and smoke) must occur. Sensory mechanisms (sniffers) shall be used to sample air and provide alarms prior to pressurization of the system with water. Once two separate sensors detect the presence of smoke, the system will be pressurized with water. Sprinkler heads will only be activated when the temperature at the sprinkler head reaches 135° F. Authorized personnel will manually drain the dry-pipe system once the fire threat has been suppressed.

1.2.4.2 Flood Protection

Vendor shall ensure that the Data Center facilities are properly sited, designed, protected, and monitored to ensure against any type of flooding or water incursion that could potentially damage any Data Center facility and any of the equipment housed within the facility used to deliver and support the Commonwealth's IT Services computing environment. This includes automatic water detection sensors, as well as proper drainage of water flooding within any Data Center facility. In addition, the Vendor shall ensure that any Data Center facility is not situated within a designated flood zone.

1.2.4.3 Site Selection

The Commonwealth prefers a primary Data Center (CESC) facility and site location as per industry best practices with the primary characteristics of single-story, suburban location within the Richmond, VA. Metropolitan vicinity. The Commonwealth requires a backup Data Center (SWESC) to be located outside of a 100-mile radius of the primary Data Center. The selected location must support community development and job growth in a rural and economically depressed area of the Commonwealth

Vendor shall take into account the following risks and provide a written risk assessment summary report to VITA when proposing a Data Center site. If risks are identified, then Vendor shall propose a risk mitigation strategy and shall at minimum identify:

- a) Mixed tenancy
- b) Environment conditions, including weather, hurricane paths, earthquake statistics, flood data, etc.
- c) Fuel availability and delivery
- d) Electrical substation capacity and performance
- e) Location and proximity to high-visibility public or private-sector structures, main railroad line, shipyard, nuclear power plant, military installation, container storage, hazardous waste dump, airports, HAZMAT storage tanks, high-crime areas, and/or major highway.

1.2.5 Site Access and Security

Vendor shall ensure that precautions are taken to protect the Data Center facilities from unauthorized physical access. To achieve this, Vendor will provide multilevel physical security features and enforce security policies and procedures. Vendor shall provide and maintain the following external and internal premise access security features at each Commonwealth Data Center:

- a) Provide and monitor controlled-access to the main data center from the welcome area to be controlled by automated mantraps and industry standard electronic authentication devices to prevent forced entry into the facility.
- b) Provide and monitor controlled-access to all internal secured areas within the Data Center facility, including the production floor and the shipping/receiving areas, using industry-standard electronic authentication devices (e.g., magnetic card readers, cipher locks, biometric controls, etc.).
- c) Provide and monitor high-density, motion-sensing digital color closed-circuit television cameras (“CCTV”) which are strategically located throughout the facility to minimize egress/exit blind spots and to monitor activity and traffic.
- d) Provide and monitor motion detectors and alarm systems located throughout the Data Center, with a silent alarm and automatic notification of appropriate law enforcement officials protecting all exterior entrances.
- e) Provide and monitor electromagnetic locks on all exits with mechanical lock backups to prevent forced entry through fire exits.

1.2.5.1 Site and Production Floor Access

Vendor shall provide 24x7x365 access to the Data Center facilities for Commonwealth authorized individuals. Tour groups will be approved by VITA prior to the tour date.

Table 2. General Site and Production Floor Access Roles and Responsibilities

General Site and Production Floor Access Roles and Responsibilities		Vendor	VITA
1.	Develop and recommend site and production floor access policies and procedures	X	
2.	Review and approve site and production floor access policies and procedures		X

General Site and Production Floor Access Roles and Responsibilities	Vendor	VITA
3. Develop policies and procedures for shared space and customer collocation, visits and tours	X	
4. Review and approve policies and procedures shared space and customer collocation, visits and tours		X
5. Maintain a database of access history to the Data Center facilities	X	
6. Audit of procedures and access history to the Data Center facilities on a periodic basis		X
7. Recommend procedures for checking the security of shipments, packages, deliveries, equipment etc. coming into the Data Center sites	X	

1.2.5.2 CCTV Digital Recorders

All aspects of the Data Center facilities shall be monitored and recorded 24x7x365 using high-resolution, motion-activated color digital video cameras with pan, zoom and tilt capabilities. The recorded data shall be archived to disk for 30 days.

Interior cameras must cover all areas of the production floor and all corridors, all egress/exit points for secured areas within the facility, all mechanical areas, and all shipping and receiving areas. Exterior cameras must cover building all entrances, parking lots, the roof and exterior utilities and premise facilities such as generators and mechanical equipment. Camera feeds shall be monitored 24x7 from the building security guard station as well as from the CMOC operations center inside the facility. During non-prime shift, weekends, and holidays there will be one security guard on duty at each location with the ability to increase security staff for situations in accordance with its procedures. During those times, the security guard will have to make rounds through the facility, monitoring will turn over to the offsite ITP Security Officer.

1.2.5.3 Additional Security and Operational Requirements

Vendor will be responsible for checking all equipment brought into the Data Center facilities before that equipment is allowed into a customer staging area or onto the production floor. Shipping and receiving areas must be walled off from the production area, with access controlled by industry standard electronic authentication and identification mechanisms.

All shipments must be scheduled in advance or they will not be accepted. Delivery vehicles must go to the designated delivery dock area. Proper authorization must also be required for removal of any equipment.

Vendor will provide ongoing operational support, maintenance, and upgrades for the Data Center facilities, supporting real estate and related facilities infrastructure. This includes but is not limited to proper data center cleaning, physical structure maintenance, and all related real estate maintenance and upgrades

2.0 Network Services Connectivity

Vendor will provide and manage connectivity, including all necessary Network circuitry, hardware and software, that will enable VITA's secure access to Commonwealth Systems, data, and records located at the Data Center facilities from VITA's designated locations.

2.1 General Network Back-End Connectivity

The following identifies the activities, roles and responsibilities associated with Engineering/Development Services that are specific to this SOW.

Table 3. General Network Back-End Roles and Responsibilities

General Network Back-End Roles and Responsibilities	Vendor	VITA
1. Recommend WAN / LAN/ VPN / firewall requirements for Data Center Network connectivity and redundancy to the Data Center based on industry best practices and capacity requirements to support Service Levels across all Towers	X	
2. Review and approve requirements for WAN / LAN / VPN / firewall services for connectivity and redundancy to the Data Center		X
3. Perform business liaison function to Eligible Customers		X
4. Recommend Network capacity thresholds for Data Center connectivity and redundancy	X	
5. Approve Network capacity planning thresholds for Data Center connectivity and redundancy		X
6. Provide capacity and performance reports on a monthly basis	X	
7. Procure/provision and maintain all Data Center Network components and circuits	X	
8. Report performance against Service Level requirements	X	

2.2 Engineering/Development

The following identifies the activities, roles and responsibilities associated with Engineering/Development Services that are specific to this SOW.

Table 4. Engineering/Development Roles and Responsibilities

Engineering/Development Roles and Responsibilities	Vendor	VITA
1. Develop Network design, engineering and security testing and integration procedures that meet requirements and adhere to defined policies for the Data Center connectivity	X	
2. Approve Network design engineering, security testing and integration procedures for data center connectivity		X
3. Prepare Network design, engineering and security, plans and schedules to support new and enhanced applications, architectures and standards for the data center network	X	
4. Review and approve Network design, engineering and security plans and schedules		X
5. Approve the scheduling of major changes to the data center Network environment. Major changes are those that will substantially change service delivery, affect end user customers, improve Service Levels or increase costs to VITA.		X
6. Coordinate with VITA and the other Eligible Customers affiliated entities, and public carriers, as required	X	

2.3 Asset Acquisition and Network Provisioning

Vendor will perform all necessary Asset Acquisition and Provisioning activities associated with acquisition, engineering, provisioning, build-out, relocation, testing, and production

activation for the new Data Center facilities and their respective IT computing resources. This shall include presentation of all requested planning documents to VITA and the Commonwealth for review and approval.

Figure 1. VITA Data Center Infrastructure Design

Please see attached Addendum 1.

3.0 VITA Office Space Requirements

Vendor shall provide and manage office space and related office services, including all office furnishings, for VITA staff that work closely with Vendor to monitor services, provide relationship management, procurement, finance, billing, planning, and other VITA internal functions. VITA estimates the staff to be up to 200 and will require approximately 170 sq ft per person in its office area. The 170 sq. ft. includes office space, conference rooms, hallways, break-rooms, and other associated space to accommodate a normal office environment.

3.1 VITA Staff Environment

The requirements are broken down into:

1. Providing a fully managed facility; and
2. Providing the facilities coordination within the Data Center for IMACS and other day-to-day operational tasks to support VITA staff on site.

Specific requirements in each area are as follows:

- a) Office space shall be adjacent to or in a close campus or other similar arranged space to allow for close coordination between VITA and the Vendor.
- b) Office space will be secured from the Data Center and be generally operational during normal working hours.
- c) VITA and Vendor space arrangements shall allow for both VITA-dedicated conference rooms as well as for the sharing of conference rooms, break-rooms, and other facilities in order to reduce costs and promote a partnership arrangement.
- d) Additionally, Vendor will provide the VITA office with the following services:
 - Office space and associated areas for VITA staff
 - Environmental systems to support a typical office environment (e.g., HVAC, power, water, lighting, sanitation, etc.)
 - Parking spaces
 - Cleaning Services
 - Repairs and maintenance of building structure & grounds, environmental systems, lighting, etc.
 - Vendor will build out space based on VITA requirements and in accordance with the VITA space standards and policies
 - Satellite or cable TV services and associated equipment within VITA personnel facilities area(s)

3.2 Facilities Management

Vendor will provide facilities coordination services for VITA at the Vendor-provided office facilities and at other locations where VITA central staff are located on an ongoing basis to accommodate staffing facility requirements and IMACS on a day to day basis. Vendor must also manage facility-related programs in accordance with VITA and Commonwealth-specified parameters for those areas occupied by VITA personnel, which include:

- Furniture for VITA staff based on VITA space and furniture policies and standards, or as mutually agreed upon by Vendor and the Commonwealth.
- Manage parking spaces and allocation of spaces both at the RPB facility, the new Commonwealth Enterprise Solution Center and the Southwest Enterprise Solution Center.
- Employee IMACs including coordinating telephone and PC moves and changes
- Surplus property – state program for Commonwealth assets
- PA systems (CESC Only)
- OSHA requirements and programs
- Energy Management – state program
- Recycling – state program
- Key and Lock administration
- Employee Safety Management
- Emergency Reaction Plans & Procedures, including fire, building emergencies, and First Aide training and equipment

4.0 Backup Data Center Requirements

Backup Data Center Requirements

VITA requires a Backup Data Center, which must meet the following general parameters:

- a) Designed to house Commonwealth production, test, and development Systems.
- b) Located outside of a 100 mile radius of the Primary Data Center. The selected location must support community development and job growth in a rural and economically depressed area of the Commonwealth.
- c) Must be sufficiently designed, constructed, supported, staffed, and maintained to meet VITA IT Service Continuity and DR requirements and industry-acceptable standards suited to the purposes for a facility of this type.
- d) Must take into account similar risk assessment characteristics as contemplated for the Primary Data Center in Section 1.1.4.3 – Site Selection.

In the event that Vendor proposes a shared-space Backup Data Center facility that would house IT resources used to support customers other than the Commonwealth, then Vendor shall implement additional security parameters to ensure segregation and protection of the Commonwealth IT network infrastructure and data. All other facility infrastructure can be shared based on effective IT security practices.

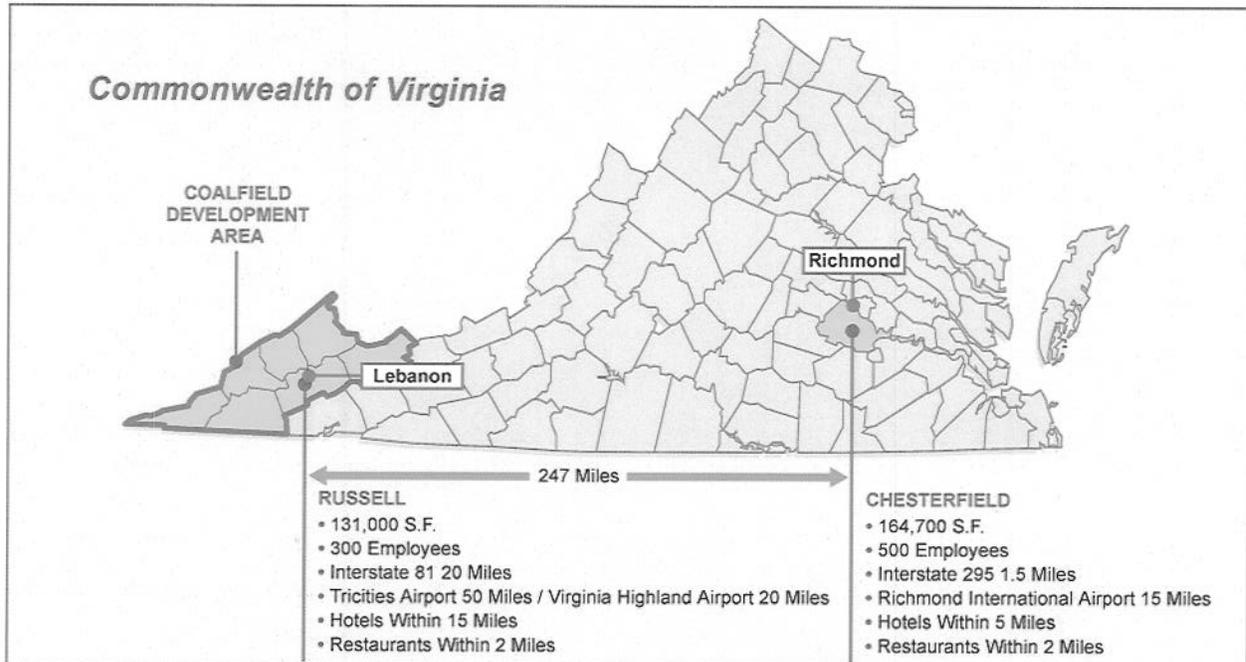
All Systems within the Primary Data Center shall be designed to accommodate electronic vaulting as a means to store DR data at the Backup Data Center. The Backup Data Center facility shall have a disk mirroring solution (or such other solution approved by the Commonwealth) for disaster recovery that will provide replication of data covered by the Disaster Recovery Plan to the Backup Data Center.

Vendor shall recommend appropriate Systems back-up architecture solution(s) for the Backup Data Center that will optimize utilization of the Commonwealth computing resources to provide System resource flexibility and reconfiguration in the event of a Disaster.

**ADDENDUM 1 TO SCHEDULE 4
TO THE
COMPREHENSIVE INFRASTRUCTURE AGREEMENT
DESCRIPTION OF FACILITIES**

Statement of Technical Approach to Data Center Facilities Services

Northrop Grumman will provide a new office complex and data center in the greater Richmond area, located at the Meadowville Technology Park in Chesterfield County. Northrop Grumman will also provide a new help desk and back-up data center complex in Southwest Virginia, located in the Russell County Regional Business/Technology Park in Lebanon, Virginia. **Exhibit 1** shows the locations of the two facilities.



VITA 186_r3

Exhibit -1 Commonwealth of Virginia Facility Locations

The Commonwealth Enterprise Solutions Center (CESC), will be designed and constructed to Tier III standards as set forth by the Uptime Institute, providing the necessary infrastructure

to meet the demands of today's information technology equipment, especially in the electrical and cooling arenas. The CESC will provide for the security, flexibility, and scalability objectives of VITA and the Eligible Customers.

Vendor will utilize companies currently doing business within the Commonwealth of Virginia to address architectural and engineering, general contracting, and operations and maintenance of the new facilities. These companies include McKinney and Company, an architectural and engineering (A&E) firm headquartered in Ashland, Virginia; Whiting-Turner, a general contractor located in Richmond, Virginia; and Lee Technologies, headquartered in Fairfax, Virginia. Lee Technologies will be responsible for ongoing facilities management in addition to Commissioning of the Sites in Chesterfield and Russell Counties.

Vendor will relocate all the VITA and Vendor personnel from the Richmond Plaza Building, as well as the mainframe and server workloads.

Design and construction of the Southwest Enterprise Solutions Center (SWESC), a Call Center (Help Desk) and Back up Data Center will be designed and constructed to Tier II standards with some Tier III characteristics as set forth by the Uptime Institute, located in the Russell County Regional Business/Technology Park, Site One (1), located in Lebanon, Virginia. It will be designed and constructed by the same Commonwealth-based design and construction firms used for the CESC facility in Chesterfield County. The design of this 102,000-square-foot facility will begin immediately upon contract award.

Vendor will work with VITA management to customize the facility layout and office sizes for Richmond and Russell County locations. VITA office standards, as identified in the VITA Detailed Proposal Requirements document, will be utilized.

Furniture for the facilities will be installed and wired for voice and data. The network, as well as telecommunication infrastructure, will be tested before the relocation of personnel from the Richmond Plaza Building occurs.

Upon relocating employees into the new facilities, all utilities, heating ventilation, and air conditioning (HVAC), evacuation procedures, restrooms, break room, and vending machines will be operational. Security surveillance systems, fire and burglar alarms will be operational and monitored internally, and be relayed to off-site monitoring stations. Off-site infrastructure monitoring will be performed at the SWESC and at Lee Technologies Control Center. Likewise, the CESC will be capable of monitoring the SWESC.

Security will utilize the Johnson Controls Inc (JCI) Digital Video Network (DVN) along with a receptionist/security guard during prime shift. The receptionist/security guard will be positioned at the front entrance reception desk of the CESC and the SWESC locations during the prime shift, Monday – Friday 7:00am to 4:00pm for CESC and Monday – Friday 7:00am – 6pm for SWESC. During non-prime shift hours, Vendor shall provide a security guard within the CESC and SWESC locations.

In conjunction with its development partners, Vendor will create a master design and construction plan for each facility and share the progress on the construction with VITA management at least once per month. Also, in conjunction with VITA management, Vendor will generate a master relocation project schedule detailing moves, phasing and man-hour requirements to mitigate any anomalies during the relocation process. Project plans will also

be developed for approval by VITA management for the mainframe and server workload migrations from the Richmond Plaza Building to the CESC and SWESC.

The relocation process will include the movement of approximately 100 employees per month, for approximately 400 employees from Richmond Plaza Building to CESC, and approximately 30 employees to SWESC.

Vendor will provide a move memorandum and online bulletins with the details of the moves and who will be relocating and when. Part of the relocation package will include safety procedures, such as evacuation templates for the new facility. Packing materials such as cardboard boxes, tape, labels for boxes, and plastic bags will be provided by the Vendor in advance of the actual move dates.

A facility representative from Vendor will assist in coordinating at the Richmond Plaza Building during relocations, and be responsible for taking inventory of items being loaded onto moving vans. All accessories for laptops, desktops, mouse, keyboards, and network cables are to be placed in plastic bags and labeled with the appropriate destination, by employees utilizing this equipment.

Once at their destination, all computers and accessories will be connected. Technical support will be available to assist in solving problems with voice or data connectivity. This will include proper operation of laptops and desktop computers.

Prior to relocating employees, new building access cards (Key cards) will be prepared by Vendor in conjunction with VITA and Vendor management to determine access levels for each employee. Determination of access levels will occur at least 2 weeks in advance of the moves.

An individual's access level will determine what areas of the facility a person may enter, such as the data center, the mechanical rooms, or the warehouse. It will also restrict what time of day or days of the week a person is allowed access.

On a person's first day of arrival for work at CESC and SWESC, individuals will be issued new badges, and a Vendor Environmental Safety and Health representative will discuss building evacuation policy and procedures. An Emergency Response Team (ERT) will be created, and an individual from each area of the building will be assigned to this team as that area is occupied. Vendor will be responsible for ERT training for designated ERT members.

Physical Site Infrastructure Strategy

The CESC and SWESC design approach will use the latest engineered steel building technology to minimize the construction time, yet satisfy the requirement for a "hardened" structure. The facility will be engineered to allow for future expansion of the office areas as well as the data center.

The design strategy for CESC is to provide a fault tolerant environment meeting current industry standards as defined by the Gartner Group, and to meet Tier III standards as defined by the Uptime Institute for mission-critical facilities. The design strategy for SWESC is to provide a fault tolerant environment meeting current industry standards as defined by the Gartner Group, and to meet Tier II with some Tier III characteristics such as utility voltage, electrical switch gear, power distribution units, mechanical systems, data network, monitoring systems, building type, and raised floor. The facility will be designed to meet all applicable

Commonwealth, Federal and Local Codes. All applicable Occupational Safety and Health Administration (OSHA) requirements and programs will be in place prior to occupancy.

The electrical system supporting the critical load will use dual-path technology. This will be a true dual path versus a less reliable loop scheme. As an example, the CESC facility will be fed from two different substations, Dominion Power's Tyler (45MVA) and Enon's (50MVA) substations. The SWESC facility will be fed from one Appalachian Power Leabnon Station/03 South Circuit.

CESSC and SWESC will be constructed to standards that accommodate 100 watts gross per square foot. The critical load will be supported by multiple Uninterruptible Power Supply (UPS) systems, 2 feed Power Management Modules (PMM), and redundant power generation systems with dual fuel tanks, each providing 72 hours of fuel support.

Components of the electrical configuration are important to the reliability and the safety of the installation. **Exhibit 2** acknowledges the quality component points highlighted in **Schedule 4 Section 1.2.2.**

Component	Description
Isolation K factor transformers	All transformers utilized in the PMM used for 480volt IPS to 120/208 volts will be K rated.
K factor Rating	All transformers requiring a K rating will be at a minimum K13
Transformer degrees centigrade of rise	All transformers will not exceed 80 degrees centigrade of rise
DC system fused protection	All UPS DC systems will include fuse protection
48-volt delivery via fused panels	All panels delivering 48 volts will be fuse protected

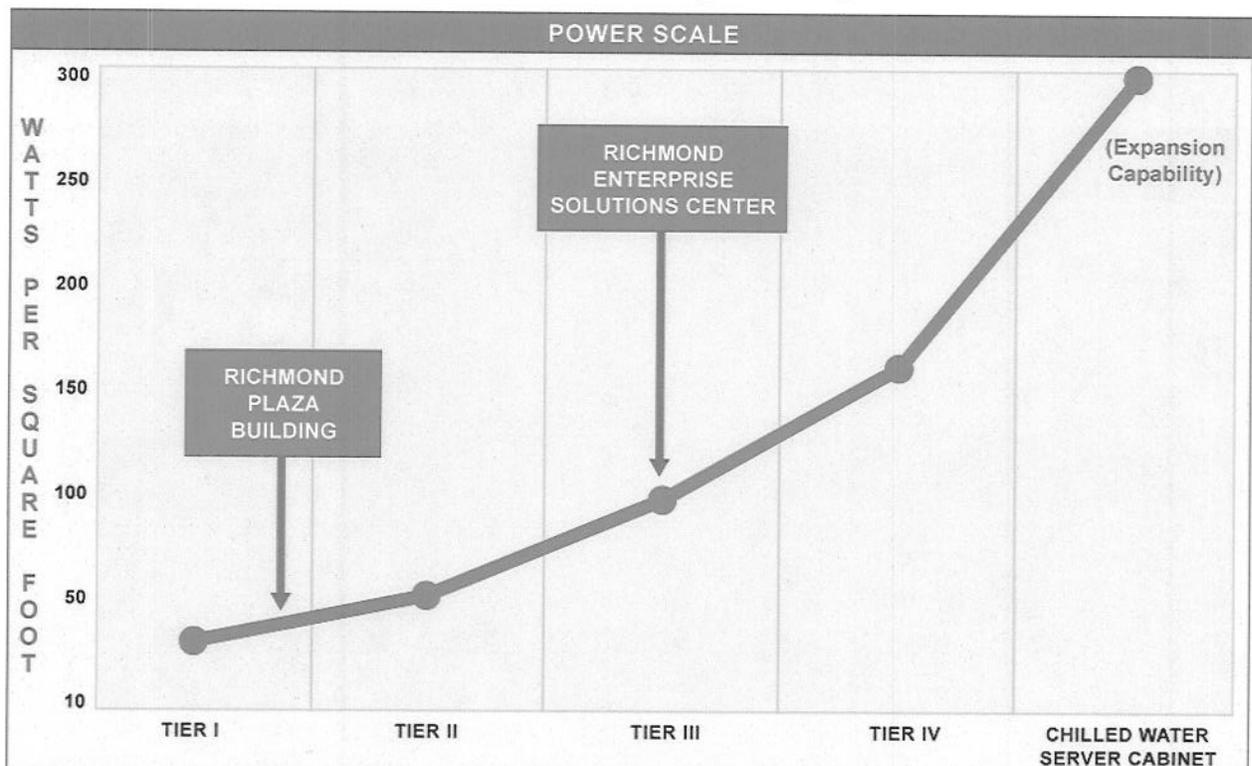
Exhibit 2 Electrical Quality Components

All of the data center support equipment configurations at CESC and SWESC will be designed to aforementioned Tier III standards, providing the ability to maintain the components without interruption of electrical power or cooling to the facility. The power generation systems will also support mechanical and other building functions. For the purposes of providing additional fuel, dual source contracts will be implemented with local providers.

Interior network cable at CESC and SWESC will be Category 6 augmented (Cat 6 A). Each workstation will have 1 voice drop and 2 data drops. The CESC and SWESC training room, video conference room, and multipurpose room will be accommodated with sufficient voice and data communications to support attending personnel and employees. Wireless communications, with appropriate security, will be provided for the CESC multipurpose room, training room, and select conference rooms.

Satellite Television (TV) will be provided at both CESC and SWESC. Vendor will use the TV service to monitor weather and news events in the Centralized Management Operations Center (CMOC) at CESC, and at Security Desk at SWESC when SWESC CMOC is not active. TV monitors will be placed in locations designated by VITA for their use.

The air-conditioning system at CESC and SWESC will use a Tier III-rated chilled water plant with redundancy. This includes chilled water loops under the raised floor. Both the send and return loop will begin and return to the mechanical room in accordance with Tier III standards. Ventilation and heat exhausting will be provided by an above-ceiling plenum scheme to maximize efficiency. In addition to feeding the computer room air-conditioning units, the chilled water loop will be available to support the latest technology in chilled water server cabinets. Chilled water server cabinets provide cooling up to 300 watts per square foot, which substantially increases the cooling capability of the data center without excessive investment and retrofit of the building cooling plant. These new technology server cabinets will be provided, as required, to maintain appropriate environment. All environmental parameter targets as specified in **Schedule 4, Table 1** will be met and/or exceeded, including the mechanical room and electrical room ambient temperature requirements.



VITA 187_r3

Exhibit 3 Power Scale

This exhibit shows the required power to be delivered to a data center based on The Uptime Institute's Tier ratings.

The power scale in **Exhibit 3** illustrates the current conditions of the Richmond Plaza Building Data Center versus Commonwealth Enterprise Solutions Center (CESC). The Richmond Plaza Building cannot achieve the power density above approximately 40 watts per square foot due to the inability to exhaust excessive heat at the Richmond Plaza Building. The heat density of today's server technology requires a greater capacity, thus the 100 watts per square foot requirement. The use of chilled water server cabinets will allow for greater heat density as the technology demand increases. CESC and SWESC will be designed to allow chilled water distribution systems to accommodate the aforementioned new technology cabinets should they be required in the future.

Physical security management and security monitoring are critical components. Both CESC and SWESC will have a security office to centralize the security management and monitoring of the sites. Security monitoring will be interactive between sites.

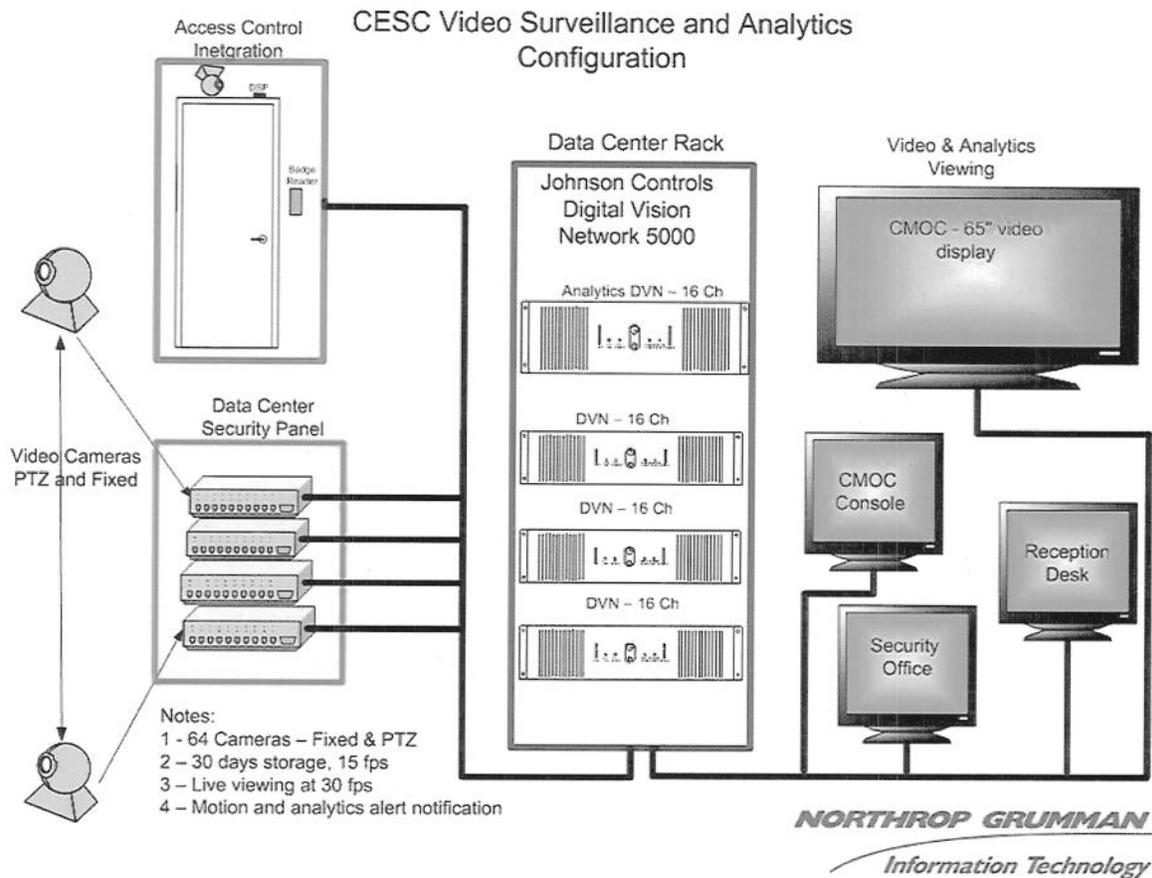
Campus security at both sites will use Johnson Controls Inc.(JCI) Digital Video Network (DVN) system to coordinate access and video surveillance using the latest “smart” technology (see **Exhibit 4**). The “smart” technology refers to the ability of the system to recognize incidents without human intervention. JCI DVN will monitor the buildings interior, exterior perimeter and parking areas. JCI DVN delivers high security service levels, and will include analysis, enhanced access, searching and sharing, retention and archiving, increased automation and scalability, and authenticated data. Images and events or incidents will be captured by color digital cameras with features including motion activation with pan, zoom and tilt features. JCI DVN will apply analytics to the cameras that integrate with other enterprise security devices, alarms, and command and control systems. JCI DVN will interface with the Access Control System to capture access violations. With Vendor’s JCI DVN, the security personnel will be able to view real-time video while receiving policy and anomaly based alerts. These policy-based alerts will be produced from intelligence provided by the security personnel. The capture of images is active until they are archived online for historical comparison or legal purposes. Storage of JCI DVN data will be maintained in the system for a minimum of 30 days, and retained on disk for a mutually agreed period.

Cameras will be used to monitor the exterior control perimeter of the campus, as well as building perimeter and entrances, parking lots, roof, exterior utilities, and premise facilities, including generators and mechanical equipment, as well as utility transformers. A mutually agreeable set-back will be provided around the perimeter of the building; this set-back area will be under camera surveillance.

Security obstacles around the facility will use a combination of bollards, existing trees, earthworks, and flower plant bollards.

A Public Address System will service the entire CESC building, and can be activated at the Security Office, the CMOC or key management offices.

These security systems at CESC will be monitored at the security desk/office on a 24x7 basis. Panic buttons at CESC will be located at the Reception Desk, the CMOC, and a VITA designated location. At the SWESC, two panic buttons are located the Security desk.



Access control will be provided using Vendor's access card, which uses a radio frequency identification device (RFID) chip technology. This RFID technology will be installed throughout both CESC and SWESC and zoned for "need to know" access. The access control system is database oriented, which allows for individual information, including zone access, to be displayed in the security office. The system will be interfaced with the JCI DVN system to capture attempted access violation incidents in addition to the access control systems documentation. The Richmond area data center will be further hardened using a mantrap (portal) equipped with not only card key, but also biometric authentication via fingerprint reader technology, as shown in **Exhibit 5**. The benefits of the portal with biometrics include 1) the elimination of tailgating and anti-pass back control via a weight sensitive floor, and 2) two-factor authentication via cardkey and biometrics.

In addition to the access control portal, a vendor and “crash out” door will be provided and supervised by security personnel. The crash out door provides an alternate entryway into the data center for handicapped and visiting personnel that can only be used through visual verification by security.

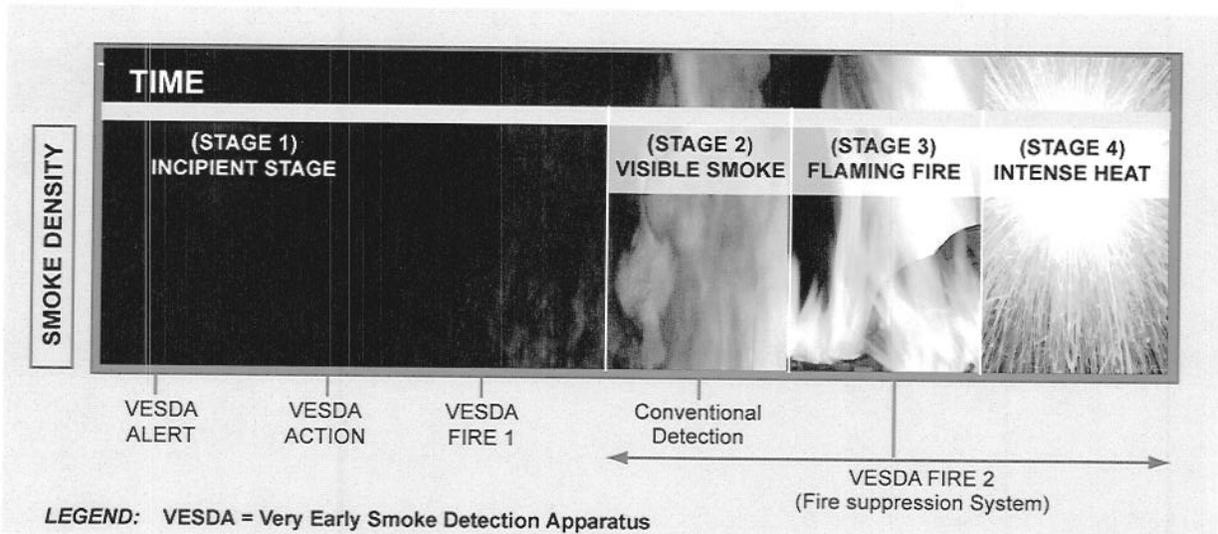
Security personnel will be responsible for lock and key administration in accordance with documented policies and procedures.

The new facilities will be isolated, with no signage indicating the function of the facility in either the Richmond or Southwest location.

Vendor will provide a fire suppression system to protect the new data centers located in CESC and SWESC. The fire suppression system will be a combination of a very early smoke detection apparatus (VESDA) system, a high sensitivity smoke detection system (HSSD), and a double interlock pre-action sprinkler system. The VESDA system interfaces with the pre-action system and provides 3 levels of alarm prior to flooding the pipes. This system is more sensitive than conventional smoke detectors associated with gaseous suppression systems. **Exhibit 6**



illustrates the VESDA system functions to identify the various stages of smoke detection.



VITA 142.13

CESC and SWESC data centers will be equipped with 48-inch raised floors to accommodate under floor cabling, as well as to support the circulation of conditioned air to equipment on the floor. The raised floor will meet or exceed live load criteria of 150 pounds per square foot. The office areas will have 6-inch access floors to support voice and data cabling as well as

electrical service to the cubicles and offices. The facilities will be designed with depressed slab technology, eliminating ramps and steps associated with raised or access floors. The ceilings at both facilities will be plenum to provide the maximum ventilation and heat exhaust vital to the successful maintenance of a cool environment. The print area at both facilities will be provided with an 12 inch raised floor to accommodate a cooling environment sufficient to support printers and associated support equipment.

Both data centers will be equipped with supervised water detection systems under the raised floor.

Employee safety management and emergency plans and procedures will be implemented in accordance with VITA and current Vendor policies and procedures. These policies and procedures will meet or exceed Federal, Commonwealth and Local requirements.

Site Selection of New Commonwealth Enterprise Solution Center

The Vendor facilities solution calls for two sites located in the Commonwealth of Virginia. The CESC will be located in the Meadowville Technology Park, located in Chesterfield County, as shown in **Exhibit 7**.



VITA 101

Exhibit 7 Meadowville Technology Park

This aerial photograph shows Meadowville Technology Park, with an outline of the specific proposed site for the new CESC, along with the proposed access road that will be provided. This site meets the requirements for an isolated site.

The Meadowville Technology Park Topography is shown in **Exhibit 8**.

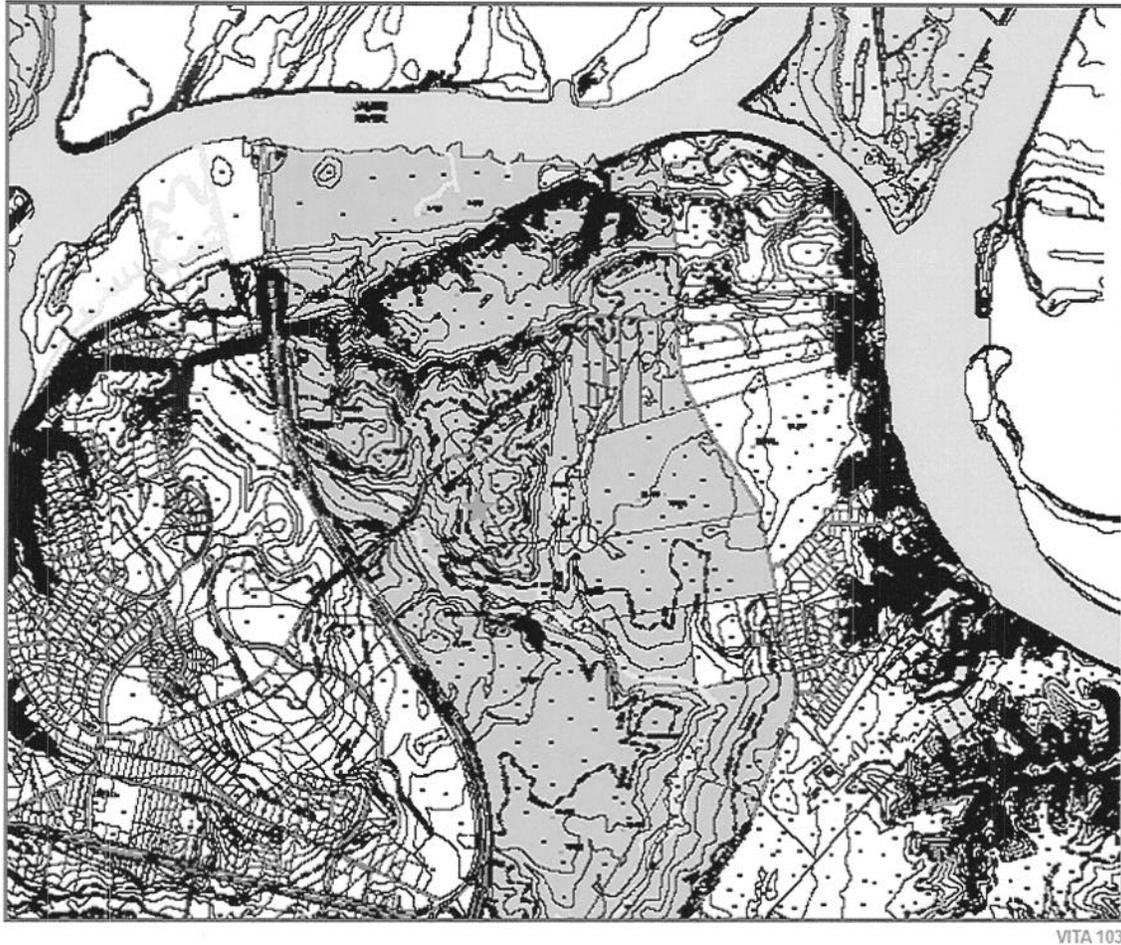


Exhibit 8 Meadowville Technology Park Topography

On this topographical map of the Meadowville Technology Park in Chesterfield County, Virginia, the red star identifies the approximate location for the site of the new CESC, which is 113 feet above the flood plain.

CESC will be designed and constructed as a data center and office complex, housing a 50,000-square-foot data center with support areas consisting of offices for VITA and Vendor personnel, located in the Meadowville Technology Park Site 5. The total area of the building will be 192,000 square feet on 28 acres. In addition, amenities for employees will be provided, such as break rooms, conference rooms and outside patio areas. The site will also include a laboratory for testing various computing equipment, and a shipping and receiving area with loading dock and storage to complement the functions of the offices and data center.

Parking spaces will be provided to accommodate both employees and visitors. The current forecast is for 500 employees. All parking will be provided at no cost to employees. Vendor will manage the parking spaces and allocation.

Network Services Connectivity

Vendor will provide network connectivity for the new data centers. This will include voice and data throughout the facility. The data center will be served by multiple network circuits, including a synchronous optical network (SONET) 622 megabits per second (Mbps) ring, and a 1000 Mbps Ethernet Transparent Local Area Network Services (TLS) circuit. These circuits will enable secure access to Commonwealth systems, data and records located at the data center from VITA's designated locations.

Upon arrival of the signal at the data center from the aforementioned circuits, the signal will traverse a network firewall for a security check then go into a main core switch which will route it towards its destination. The core switch is equipped with monitoring systems that will provide ongoing periodic reports on network capacity and utilization, as well as detailed specialized reports on demand. The reports will provide data to determine compliance with service level agreements (SLAs), and, by performing trend analysis, Vendor can determine any required actions to improve network performance. This may include adding capacity to the network.

Asset Acquisition and Network Provisioning—Vendor will perform all asset and acquisition provisioning services for the network, including engineering, based on the reports generated by the Network Operations Center (NOC). This includes, but is not limited to, build-out, relocation, testing, and production activation. All network activities performed by Vendor will be presented to VITA for review and approval prior to implementation to assure operational success and customer satisfaction.

VITA Office Space Requirements

CESC will house the VITA personnel responsible for management and oversight of the Vendor PPEA agreement, the Vendor Program Management Office, and the Vendor team.

As a result of the build-to-suit solution, VITA will be an integral part of the planning and design to accommodate their needs. VITA will have its own office space within the facility located next to Vendor Program Management Office. The VITA office space will be fully furnished and designed to provide 170 square feet per person and accommodate 200 people. This space allocation includes common areas to provide for such needs as hallways and conference rooms. Vendor's plans include providing shared facilities, such as a 250-seat multipurpose room, a video teleconferencing room, a training room to accommodate up to 40 students, an employee break room, and multiple conference rooms. The multipurpose room will have amenities such as digital projection, theater sound, theater lighting, and the capability to field 2-way conversations via cordless technology. The multipurpose room will provide a large venue for "all hands" meetings, presentations to agencies and professional gatherings, and will be shared by VITA and Vendor. The training room will be designed to accommodate multiple training scenarios, and will be equipped with voice and data to support the needs of both students and instructors. The video teleconferencing (VTC) room will include a large video projection interface and lighting to enhance the conference capabilities. Using the proposed sites eliminates any concern for utility cross over that could be an issue in retrofit sites. These sites will be constructed to meet current and future industry hardware demands, rather than trying to retrofit existing sites.

Staffing for Facilities Management Commonwealth Enterprise Solutions Center

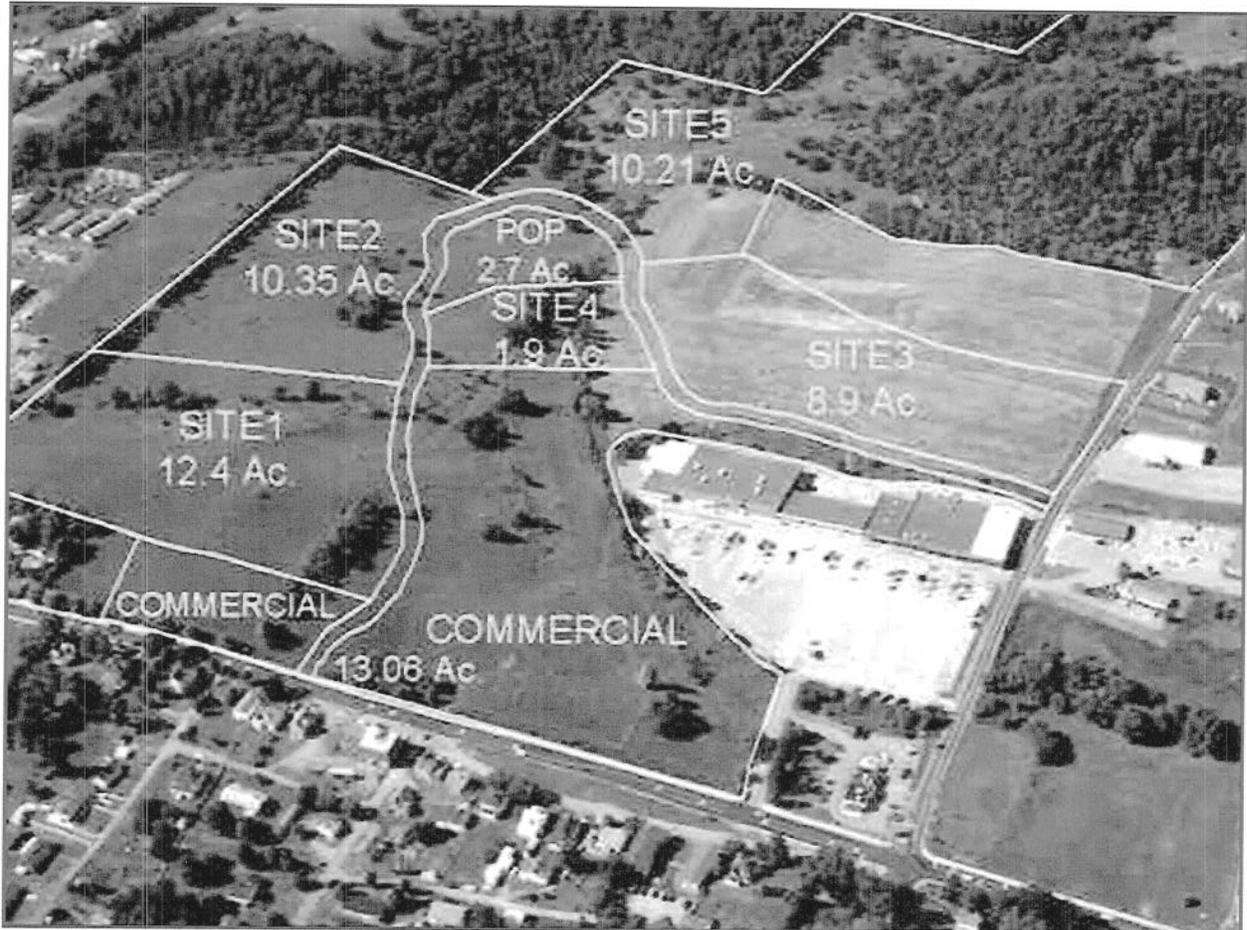
Facility operations will be provided by Vendor and Lee Technologies, upon commissioning and thereafter. This function will report to the Business Management Director with a dotted line to Infrastructure Services Director.. Facility maintenance will be performed by Lee Technologies, a Virginia company headquartered in Fairfax, Virginia. The plan for the operation of the facilities will be documented with standard and emergency operating procedures to provide proper operation and maintenance of the facility, and to provide for emergency situations that may arise. All building systems will be monitored and managed using a Building Management System (BMS) to provide proper function of the infrastructure equipment and timely response to failures. BMSs will be installed to provide on-site monitoring in the facilities office and at the CMOC. Also, BMS monitoring will be provided off-site at Lee Technologies. All maintenance will be performed according to industry standards including, but not limited to, IEEE 446, NFPA 110, and NETA MTS-2001. The maintenance of the facilities will be automatically scheduled by a computerized maintenance program, managed by Lee Technologies, to provide timely completion of maintenance as recommended by the manufacturers. This system also contributes to the change control process when maintenance is performed on mission-critical equipment, as well as the basic building equipment. Vendor reserves the right to use a facilities maintenance provider other than Lee Technologies.

Site Selection of Southwest Enterprise Solution Center

SWESC will be designed and constructed as a call center and back-up data center housing a 20,000-square-foot data center, with support areas consisting of call center offices for Vendor personnel, as well as a training center and video teleconferencing facility. The total area of the building will be 102,000 square feet, on 12.4 acres. In addition, amenities for employees will be provided, such as break rooms, conference rooms, and outside patio areas. The site will also include a shipping and receiving area with loading dock. Security will be provided using JCI DVN surveillance equipment, access control and a receptionist/guard during prime shift. As SWESC is intended to be used primarily as a call center and disaster recovery center for many Vendor customers, this site will have Vendor signage on the exterior. As a primary Vendor facility, outside physical protection from vehicle penetration will be provided in accordance with Vendor security practices for Vendor critical facilities. The SWESC data center will be constructed as a disaster recovery Tier II facility with many Tier III characteristics.

The location is isolated from high-visibility public and private structures, main railroad lines, shipyards, nuclear power installations, military installations, container storage sites, hazardous waste dumps, commercial processing facilities, airports, HAZMAT storage, and high crime areas. Interstate Highway 81 is within approximately 20 miles of the facility site. The facility will house only those personnel supporting VITA and Vendor operations. Vendor's intent is to share the IT resources to provide the best value to VITA and its customers. Security measures will be taken to provide segregation and protection of Commonwealth data. There are no historical issues with weather, hurricane, earthquake, or flood. The site is not in a flood zone.

The SWESC will be located in the Russell County Regional Business/Technology Park, Site 1, as shown in **Exhibit 9**.



VITA 102

Exhibit 9 Russell County Regional Business/Technology Park

Exhibit 10 shows the topographic depiction of the Russell County Regional Business/Technology Park.

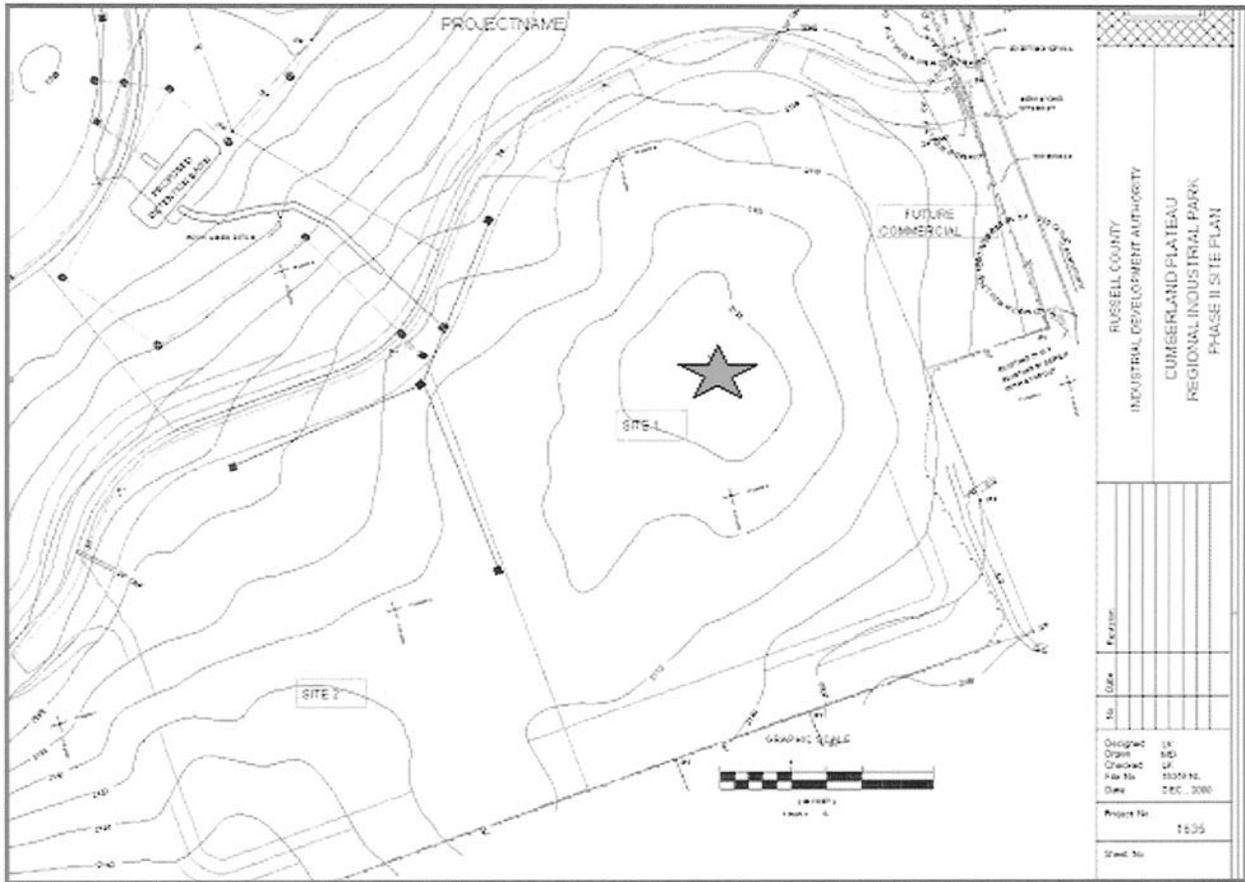


Exhibit 10 Russell County Regional Business/Technology Park Topography

The red star identifies the approximate location for the SWESC, which shows the location as the highest point on the property.

Staffing for Southwest Enterprise Solutions Center Operation and Maintenance

Facilities operation and maintenance of SWESC will be performed by Vendor employees and by Lee Technologies. Operation and maintenance staff will report to the Business Management Director with a dotted line to Infrastructure Services Director. The plan for the operation of the facilities will be documented with standard and emergency operating procedures to provide proper operation and maintenance of the facility, and to provide for emergency situations that may arise. All building systems will be monitored and managed using a Building Management System (BMS) to provide proper function of the infrastructure equipment and timely response to failures. BMS' will be installed to provide on-site monitoring in the facilities office and at the CMOC. Also, BMS monitoring will be provided off-site at Lee Technologies. All maintenance will be performed using best practices as outlined by the industry standards including, but not limited to, IEEE 446, NFPA 110, and NETA MTS-2001. The maintenance of the facilities will be scheduled by a Computerized Maintenance Program (CMP), managed by Lee Technologies, to provide timely completion of maintenance as recommended by the manufacturers. Vendor reserves the right to use a provider other than Lee Technologies. This system also contributes to the change control process when maintenance is performed on mission-critical equipment, as well as the basic building equipment.

Uptime Institute Standards as of October 2007

Definitions: The following are definitions and explanations of the data center Tier levels as defined by The Uptime Institute.

Tier I – Tier I is composed of a single path for power and cooling distribution, without redundant components, providing 99.671% availability.

Tier II – Tier II is composed of a single path for power and cooling distribution, with redundant components, providing 99.741% availability.

Tier III – Tier III is composed of multiple active power and cooling distribution paths, but only one path active, has redundant components, and is concurrently maintainable, providing 99.982% availability.

Tier IV - Tier IV is composed of multiple active power and cooling distribution paths, has redundant components, and is fault tolerant, providing 99.995% availability.

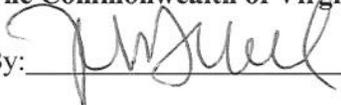
	SWESC	CESC
1) Electrical components and paths:		
Utility Power	Tier II	Tier III
Utility Voltage 34000 Volts	Tier III	Tier III
Motor Generators	Tier II	Tier III
UPS Systems	Tier II	Tier III
Electrical Switch Gear.	Tier III	Tier III
Power Distribution Units (PDU's)	Tier III	Tier III
2) Mechanical Systems, components and paths:		
Chiller	Tier III	Tier III
Chiller Water Tower	Tier III	Tier III
Chilled Water Piping under the raised floor - bi-directional.	Tier III	Tier III

Mechanical Switch Gear.	Tier III	Tier III
Computer Room Air Conditioning Units (CRAC units)	Tier III	Tier III
Watts Per Square Foot	Tier III	Tier III
3) Data Network - dual redundant network paths	Tier III	Tier III
4) Monitoring Systems - monitor all critical infrastructure. Monitoring will be done 7 x 24	Tier III	Tier III
5) Building Type	Tier III	Tier III
6) Support Space	Tier III	Tier III
7) Fuel Tanks for Generator	Tier II	Tier III
8) Fire Detection System - VESDA System	Tier III	Tier III
9) Water Supply	Tier II	Tier III
10) Raised Floor	Tier III	Tier III

The parties have executed this Agreement on the dates indicated below.

Executed by:

The Commonwealth of Virginia

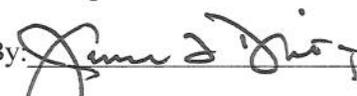
By:  _____

Name: Fred Duball

Title: Director, Service Management Organization

Date: 2/26/09

Northrop Grumman Information Technologies, Inc.

By:  _____

Name: James L. Dietz

Title: Director, Contracts

Date: 2/26/2009