1.0 PROJECT MANAGEMENT

1.1 MASTER PROGRAM SCHEDULE SUPPORT

Defined as all activities required to accomplish the Systems Integrator (SI) project, all Commonwealth activities required to accomplish the STARS program, and all activities required to accomplish any STARS program related project(s); as identified by the STARS Program Team. The support software program to be used for this activity will be Microsoft Project Professional.

1.1.1 Assist in the development of a baseline Master Program Schedule

HSMM will assist in the development of a Master Program Schedule for each stage of each project for the overall STARS Program. This schedule will include activity responsibilities for the Systems Integrator (SI), the Commonwealth, follow on projects, and any other participants (including other Consultants and Contractors). HSMM will assist in identifying program and implementation tasks, time frames, interdependencies, deliverables, critical paths, and responsibilities. HSMM will provide this assistance both on-site at the STARS Program Office and from the HSMM Lynchburg office location. HSMM will not be responsible for providing software code, software programs, or any software interfaces required for coordinating with the SI or other Contractor(s) scheduling software or schedule inputs. HSMM will rely on the STARS Team to coordinate with the SI and other Contractor(s) to obtain required STARS Program information as required by their contract with the Commonwealth.

1.1.2 Assist in monitoring the Master Program Schedule for milestone adherence and report on positive and negative variances.

HSMM will assist in the monthly SI project meetings and provide monthly reviews of the Master Program Schedule tasks, deliverables, sub-tasks, and sub-tasks elements. HSMM will also assist in the determination of the appropriate Master Program Schedule modifications and additions to ensure all aspects of the STARS program are considered throughout the life of the program. HSMM will rely on the STARS Team to coordinate with the SI and other Contractor(s) to obtain required STARS Program information as required by their contract(s) with the Commonwealth. HSMM will provide a monthly review of both the SI's schedule updates and VSP's internal schedule.

1.2 MASTER PROGRAM BUDGET SUPPORT

Defined as all costs required to accomplish the Systems Integrator (SI) project, all Commonwealth costs required to accomplish the STARS program, and all costs required to accomplish any STARS program related project(s); as identified by the STARS Program Team.

1.2.1 Assist in the development of a baseline Master Program Budget

HSMM will assist in the development, administration and maintenance of the Master Program Budget of the STARS Program. This budget will include all costs for the SI, the Commonwealth, individual projects, and any other participants (including consultants and other Contractors, to the extent this information is made available to HSMM). HSMM will assist in identifying individual project and overall program variances and determining appropriate resolutions. HSMM will provide this assistance both on-site at the STARS Program Office and from the HSMM Lynchburg office location. HSMM will not be responsible for providing software code, software programs, or any software interfaces required for coordinating with the SI or other Contractor(s) scheduling software or schedule inputs. HSMM will rely on the STARS Team to coordinate with the SI and other Contractor(s) to obtain required STARS Program information as required by their contract(s) with the Commonwealth.

1.2.2 Assist in monitoring the Master Program Budget and report on positive and negative variances

HSMM will assist in the monthly status reviews of the SI budget and the individual projects' budgets. HSMM will also assist in the determination of the appropriate project and resulting program budget modifications to address positive and negative variances of the STARS Program. HSMM will rely on the STARS Team to coordinate with the SI and other Contractor(s) to obtain required STARS Program information as required by their contract with the Commonwealth. HSMM will provide an Earned Value Analysis on a quarterly basis on both planned and actual costs.

1.2.3 Assist in Master Program Budget Specific Briefings

HSMM management personnel will meet with Commonwealth officials specifically to assist the Commonwealth in preparation and presentation of the annual budget for this program.

1.3 SI TECHNICAL AND CONTRACT MODIFICATIONS REVIEW

HSMM will assist in reviewing SI requests for Contract Modifications, assess the impact on cost, schedule, and design, and ascertain the validity of the request. HSMM will make appropriate recommendations to the STARS Program Director and Procurement and Contracting Officer (PCO).

1.4 CONTRACTOR INVOICES PAYMENT REVIEW

HSMM will assist in reviewing and incorporating Commonwealth expenses, payments

1.5 MASTER PROGRAM RISK ANALYSES

1.5.1 Assist in the development of a baseline risk analysis and assist in development of mitigation strategies.

HSMM will assist the STARS Team in identifying potential risks that could impact the individual projects and the program as a whole. Where appropriate, HSMM will identify mitigation processes. The purpose is to track the potential risks so that project and program decisions may be made with due considerations to these risks.

Potential risks are issues that may cause an impact to the cost, schedule, or quality of STARS. Actual problems are tracked using the Project Manager's monthly risk documentation. Each potential risk will be reviewed during a teleconference or meeting (the primary method) and HSMM will assess that risk for priority and quantification, considering schedule, cost impact, and potential severity. HSMM will develop and assist in the STARS Team's documentation of mitigation strategies for risks and rate their priority or impact.

1.5.2 Assist in monitoring and adjusting risk analysis and mitigations as required

During the course of the program, HSMM will identify potential risks that might impact either an individual project or other parts of the program. Risk items will be tracked on the Project Manager's Risk Management form.

Open risk items will be reviewed monthly with the STARS Project Manager commenting on status and potential impact to currently scheduled tasks.

1.6 MASTER PROGRAM DELIVERABLES TRACKING

1.6.1 Assist in the development of a transmittal tracking process, individual projects deliverables lists, and individual projects action item lists.

HSMM will assist in developing a transmittal tracking process, which will assign a sequential transmittal number to each individual project document. Once this process is established, each program participant will maintain a log and sequence of transmittals, and each log will be issued one day prior to the semi-monthly program meetings and weekly individual project meeting for review. Two separate master transmittal lists will be developed and implemented: General program and/or individual project distribution and Commonwealth Management distribution.

HSMM will assist in identifying, assigning responsibility, tracking, and recording completion by establishment of an Action Item Checklist, and a Deliverable Checklist that will be developed jointly with the STARS Team upon execution of this modification.

The Action Item Checklist includes scheduled deliverables (both contactor and state responsibilities), which will be tracked separately on the Deliverable Checklist, although there may be parts of a scheduled deliverable that end up on the list. All open items should be reviewed at each review meeting, and at most of the telephone conference meetings. Action items will generally be originated at a Team conference – either a teleconference or a Project Review Meeting, and concurrently assigned an action item number. Interim decisions made between any participants that will result in an action item will be reviewed in the Team environment, so that all participants are aware of what has transpired and who is responsible and reported per the STARS Project Management Plan.

Each item in this checklist must include a sequentially assigned action item number, the date assigned, the referenced transmittal number, a description of the item, the responsible party, the priority assigned to the item, and the resolution of the item.

The Deliverables Checklist will establish formal technical submittals required of Contractors, and to monitor these submittals as they are reviewed, revised, and finally accepted. The goal here is a single review cycle conducted in a calm and non-pressured atmosphere, and integrated into the project timeline.

1.6.2 Assist in monitoring deliverables and actions items adherence

Additions to the action item checklist will generally be elaborated upon in the meeting or conference summary. Changes to or retirements from the action item checklist do not individually need to be documented in meeting or conference records, unless they are too long to be contained in a few line description.

HSMM will review the Deliverables reporting schedule as developed and this will form the basis of the Deliverables Checklist with actual dates attached to the deliverables. The deliverables will be line items on the SI's developed schedule or STARS internal schedule, and the individual project schedules. HSMM will assist in publishing the Deliverables Checklist monthly for the program and weekly for the individual project and in identifying deliverables that are delayed, late or otherwise not on schedule. The list will include the Contract reference, document description, scheduled draft or final

1.7 STARS PROGRAM MEETINGS SUPPORT

1.7.1 Project Status Meetings

HSMM will attend project status meetings in Richmond with the STARS Program Team and the SI to the review the SI project. HSMM will also provide technical support, as required, at these meetings. HSMM will review the meeting minutes, as provided by the SI, and report to the STARS Program Director any identified errors or omissions.

1.7.2 Teleconference Project Meetings

HSMM will participate in two-hour teleconferences with the STARS Program Management Team and individual project Teams to review project specific information. HSMM will also provide technical support, as required, at these meetings. HSMM will review the meeting minutes, as provided by the individual Contractors, and report to the STARS Program Director any identified errors or omissions.

1.7.3 UARC Meetings

HSMM will attend meetings in Richmond with the STARS Program Director and the User Agency Requirements Committee (UARC). HSMM will provide technical support and participate in the meeting as requested by the STARS Program Director. HSMM will document and provide to the STARS Program Director the results, attendance, and

meeting record for each meeting. To ensure continuity, all information concerning the UARC will be provided to HSMM through the STARS Program Director.

1.8 MANAGEMENT BRIEFINGS PARTICIPATION

HSMM will assist in the preparation of program and individual project status documentation (including necessary schedule and budget items) for up to four Commonwealth management meetings per calendar year. HSMM will assist in the preparation of the presentation and be prepared to participate in the presentation as requested by the STARS Program Director.

1.9 MONTHLY STATUS REPORTS

HSMM will prepare and submit monthly status reports to the STARS Program Director and the STARS Procurement and Contracting Officer listing work done during the previous period, scheduled items for the next period, and critical action items.

1.10 GENERAL PROGRAM MANAGEMENT SUPPORT

HSMM will assist the STARS Program Director, the STARS Project Manager, and the STARS Procurement and Contracting Officer with additional project management as deemed necessary by the aforementioned Commonwealth representatives. This effort will be confined to high-level project management effort and not include technical and/or administrative effort. HSMM will monthly document the Measures of Success performance metrics to substantiate the VITA Dashboard report.

2.0 IMPLEMENTATION SUPPORT

HSMM will provide standard and customary review of all SI information, submitted by the STARS Program Director, for which they are contracted. HSMM will further provide independent analysis as to reasonability of SI documentation as well as a listing of noted deficiencies found during the review of contracted documents. HSMM does not warrant the accuracy of the information contained in the documentation as presented by the SI.

2.1 FREQUENCY SUPPORT

2.1.1 Microwave, VHF, 800 MHz and 700 MHz Frequency Licensing Support

HSMM will provide the Commonwealth assistance in acquisition and licensing of Microwave, VHF, 800 MHz and 700 MHz frequencies to include processing FCC and FAA documentation. HSMM will further assist in negotiations with VITA for 700 MHz spectrum.

HSMM will provide the Commonwealth assistance in the Microwave licensing process by reviewing the microwave frequencies proposed for each path and loop. HSMM will alert STARS where our analysis of the frequencies and paths differ from the requirements.

HSMM will assist the STARS Project Manager by identifying and contacting localities that currently hold potentially unused VHF spectrum. An HSMM technical representative will investigate the extent of use via a telephone call with the appropriate locality representative. If the spectrum is unused and it appears the locality is agreeable to relinquish the spectrum or partner with STARS, HSMM will notify the STARS Project Manager immediately and further assist in the acquisition of the spectrum. If the spectrum is believed unused and the locality is not agreeable to relinquish the spectrum, HSMM will provide the STARS Project Manager a decisive and timely plan of action to proceed with further activity to acquire the spectrum.

HSMM will assist the Commonwealth in researching, identifying, and applying for additional 800 MHz spectrum, as it become available resulting from the NEXTEL ReBanding effort. HSMM will have a license application prepared in final form for that spectrum for submission during the first week that spectrum is identified as available.

CTA will obtain a contractor that specializes in the TV broadcast industry to perform coverage studies to determine primary status for 700 MHz radio frequencies, as additional services if requested.

2.1.2 Independent Verification & Validation of the SI's VHF IV&D Frequency Plan

HSMM will provide the Commonwealth assistance in the SI's task of Frequency Planning. This will include participating in the frequency planning process, identifying potential frequencies to license, identifying interference to or from individual frequency specific planning, providing input in the meetings and review of intermediate VHF IV&D frequency plans delivered by the SI for some or all of the STARS radio sites.

HSMM will advise the Commonwealth and Motorola through the application of VFAM CTA's recommended course of action for frequency plan allocation. HSMM will assist and advise the Commonwealth and Motorola in the development of a feasible statewide VHF frequency plan.

2.1.3 Independent Verification & Validation of the SI 800 / 700 MHz and 4.9 GHz Frequency Plans

HSMM will review and validate the SI supplied 700 / 800 MHz and 4.9 GHz frequency plan for equipment. This will entail taking the available frequencies and compare that frequency plan with the SI supplied 700/800 MHz 4.9 GHz channel plan, 700 MHz channel restrictions in areas where they are either co-channel or adjacent channel with an active UHF TV channel's service contour and available frequencies on the 700 MHz statewide licensed frequencies. HSMM will compare the SI supplied 700 / 800 MHz channel plan, licensed Commonwealth 700 / 800 MHz frequencies and restrictions associated with the licenses as coordinated by APCO regions 20 and 42. HSMM will provide a 700/800 MHz and 4.9 GHz Frequency Plan Validation Document to the STARS Program Director describing the findings, and making appropriate recommendations.

HSMM allows for the following SI 700/800 MHz frequency plan analysis:

- SI frequency plan for Division 1: up to two iterations for 800 MHz and two iterations for 700 MHz
- Prior to implementation of Division 2-7: up to two iterations for 800 MHz and two iterations for 700 MHz

For each plan analysis, HSMM will initially provide a 700/800 MHz Pre-Validation Analysis Description Document, which will contain the conditions anticipated for the analysis, and a description of the documentation to be provided. HSMM will require STARS Program Director approval of the Pre-Validation Analysis Description Document, within ten working days. Once HSMM has received this approval they will perform the analysis and submit comments.

2.1.4 Evaluate Results of the SI Interference Analysis for IV&D sites

HSMM will review the SI's interference analysis, including transmitter noise, intermodulation, and receiver desensitization estimates for each of the IV&D transmitter sites. This will entail an initial review and analysis, any internal HSMM computer verification needed to assess the validity of the analysis, and a document to the STARS Program Director.

Anticipating that there will be changes in site configuration for some of the radio sites, HSMM will provide a second interference analysis review for each of the IV&D radio sites. While some sites may require a second or even a third analysis review, others may only require the initial analysis review.

2.1.5 SI Claims of "Unusually High" Noise Present during Frequency Planning

HSMM will perform noise measurements at locations where the SI claims high noise has affected their coverage and or performance guarantees. Each measurement location will result in a single site noise measurement document. HSMM will only test at radio sites where the antennas experiencing noise are mounted on the tower, and the noise measurement can be made at the ground end of the coaxial cable. HSMM will make noise measurements at mobile locations using a calibrated transportable antenna. HSMM will compare the results of their measurements with the information provide by the SI and develop written comments, to be provided to the STARS Program Director, recommending acceptance or rejection of the SI claims.

2.1.6 Evaluate Results of the SI Interference Analysis for Patrol Vehicle

HSMM will review the SI's interference analysis, for patrol vehicle. This will include all public safety equipment in the patrol vehicle. This will entail an initial review and analysis, any internal HSMM computer verification needed to assess the validity of the analysis, and a document to the STARS Program Director.

2.1.7 Detailed Radio Frequency Propagation Studies

HSMM will perform RF propagation analyses for any proposed additional sites, using their P-CALA[SM] analysis software. The deliverable will be an analysis document for each site including up to four coverage charts, and accompanying text and explanation. In each case, HSMM will provide the STARS Program Director for review an Analysis Description Document containing the conditions anticipated for the analysis, and the displays (maps) planned, prior to beginning the propagation analysis. Upon approval of the Analysis Description Document, HSMM will perform the analysis and submit the document.

2.1.8 Virginia Frequency Allocation Model (VFAM) [SM]

At the end of the STARS SI project implementation, HSMM will provide a single copy of and one license for the Virginia Frequency Allocation Model (VFAM)[SM] to the Commonwealth as a tool to manage the future voice and data requirements of the system. HSMM will include a reasonable level of documentation and one day of training for up to five Commonwealth personnel.

2.2 LOCALITY PARTICIPATION SUPPORT

2.2.1 Assist in Identification of Localities for Participation on STARS

HSMM will assist the STARS Program Director in identification of localities that may participate in the STARS program. Identification may be done through FCC database search or by use of the HSMM proprietary Virginia Frequency Analysis Model (VFAM) [SM]. HSMM will develop a rough draft for the range of costs for a given locality to participate in STARS for STARS Program Director's internal use.

HSMM will assist the STARS Program Director in contacting localities deemed potential participants in the STARS program. Prior to contacting each locality, HSMM will develop talking points to discuss with localities for the STARS Program Director.

2.2.2 Development of Decision Process to Assess Viability of Locality Participation

HSMM will develop and provide the STARS Program Director for review a decision tree containing the process anticipated for the analysis, and the structure of Level 1, 2, and 3

documents planned. HSMM will conduct a one-day workshop with the STARS Project Manager to modify and refine this decision tree to meet the needs of STARS. HSMM will require STARS Program Director approval of the Decision Tree Document upon completion of revisions resulting from the workshop.

2.2.3 Assist in High Level Analysis of Locality Participation on STARS (Level 1)

In accordance with the approved decision tree, HSMM will review the frequency resources, total number of locality subscriber radios and potential impact on STARS by a locality's full participation in STARS. HSMM will perform a high level analysis to determine whether further investigation is warranted. Upon completion of this high level analysis, HSMM will provide a final Level 1 document to the STARS Program Director based on the locality's potential loading on STARS, the STARS sites affected by the locality and whether the locality's resources (primarily funding and spectrum) are sufficient and appropriate to warrant further analysis. Prior to developing the first Level 1 document, HSMM will initially provide a Level 1 analysis description document, which will contain the conditions, anticipated for the analysis, and a description of the documentation to be provided. HSMM will require that the STARS Program Director approve the Level 1 analysis description document within ten working days. Once HSMM has received this approval they will perform the analysis and submit the document. The STARS Program Director must provide written authorization before any work will begin on the Intermediate Analysis (Level 2).

2.2.4 Assist in Intermediate Analysis of Locality Participation on STARS (Level 2)

In accordance with the approved decision tree, HSMM will visit the identified locality to determine the locality's unique user requirements, including number of talk paths used, number of users expected per talk path, radio equipment types in use, radio coverage requirements, interoperability requirements, space available for STARS equipment, locality sites available, dispatch locations, facility upgrade recommendations, and operational requirements.

HSMM will analyze the locality's requirements, resources, potential STARS loading and STARS capability to use the locality's resources. HSMM will identify locality radio channels best suited to remain in service with the locality. HSMM will review the dispatch requirements to determine what type of dispatch equipment is needed and if facility upgrades are required to support STARS equipment installation. HSMM will review STARS capability to provide the radio coverage required by the locality and provide a Level 2 document to the STARS Program Director to include analysis and

recommendation for acceptance or denial of the Locality on the STARS network. Prior to developing the first Level 2 document, HSMM will initially provide a Level 2 analysis description document, which will contain the conditions, anticipated for the analysis, and a description of the documentation to be provided. HSMM will require that the STARS Program Director approve the Level 2 analysis description document within ten working days. Once HSMM has received this approval they will perform the analysis and submit the document. If the analysis and recommendation is to conduct a detailed analysis, the STARS Program Director must provide written authorization, before any work will begin on the Detailed Analysis (Level 3). CTA will determine the suitability of a locality's spectrum resources for use in STARS and the Grade of Service impact on a per site basis.

2.2.5 Assist in Detailed Analysis of Locality participation on STARS (Level 3)

If STARS coverage is determined to be insufficient for the locality's requirements, HSMM will perform up to three detailed radio frequency (RF) propagation studies at sites available to the locality.

HSMM will provide a document on the locality's potential to join STARS. The Level 3 document will identify the number of locality subscriber units added to STARS, Dispatch facilities required, the STARS sites affected, additional channels required at the affected sites, locality coverage, additional radio sites needed, the potential use of simulcast, and identify upgrades required at the locality sites to join STARS. Prior to developing the first Level 3 document, HSMM will initially provide a Level 3 analysis description document, which will contain the anticipated magnitude for the analysis, and a description of the documentation to be provided. HSMM will require that the STARS Program Director approve the Level 3 analysis description document within ten working days. Once HSMM has received this approval we will perform the analysis and submit the document.

2.2.6 Support Negotiations for Locality participation on STARS

HSMM will provide support, as requested by the STARS Program Director and STARS Project Manager, in the negotiations with Localities for their participation on STARS. This support can entail providing base information to support the Commonwealth in negotiations, as well as participation in the face-to-face negotiations with the Locality.

2.2.7 Review of Locality Equipment Installation

HSMM will take part in locality design review meetings to establish and confirm the locality design, as well as the migration plan, the fleet mapping process, and other design considerations.

HSMM will visit each Locality dispatch console and IV&D site once during construction and once upon completion of construction, for the purpose of inspecting the physical work to confirm that it is done in conformance with the SI contract. They will develop a punch list for each site, describing deficiencies that must be corrected by the appropriate SI. HSMM will review and comment on the SI's ongoing design services consisting of such items as the transmittals, drawings, and the like for the duration of the project. This will include assisting in and monitoring of the FCC and FAA permitting process.

HSMM will review design submittals, comment, and make recommendations. We will work with the STARS Team to verify that the submittals are complete and appropriate to the requirements of the SI original contract.

HSMM will conduct pre-final and final inspections of the dispatch console and radio sites to monitor equipment installation in progress and identify discrepancies and problems while they are still manageable.

2.3 INTEROPERABILITY SUPPORT

2.3.1 Provide Assistance with State Agency Interface Selection

HSMM will assist the STARS Team in determining the site location for each Agency Interface and assist in determining the type and location of each Agency Interface and associated equipment. HSMM will review Agency Interface equipment requirements determined by the STARS Team and identify candidate IV&D and Microwave sites in the vicinity of each Agency's radio system requiring an interface. HSMM will perform a microwave and land mobile radio path analysis between the STARS site and the Agency's legacy site. HSMM will recommend the type of Agency Interface equipment needed, the IV&D or Microwave site to install Agency interface equipment, the type of antenna and antenna mounting location if required.

In addition, HSMM will review, update, or create the on-site Intermodulation (IM) and EME documentation specific to the site frequencies including Agency Interface stations installed at each site.

2.3.2 Provide Assistance with Locality Interface Selection

HSMM will assist the STARS PM in determining the site location for each Locality Interface and assist in determining the type and location of each Locality Interface and associated equipment. HSMM will review Locality Interface equipment requirements determined by the STARS Team and identify candidate IV&D and Microwave sites in the vicinity of each Locality's radio system requiring an interface. HSMM will perform a microwave and land mobile radio path analysis between the STARS site and the Locality's legacy site. HSMM will recommend the type of Locality Interface equipment needed, the IV&D or Microwave site to install Locality equipment interface, the type of antenna and antenna mounting location if required.

In addition, HSMM will review, update, or create the on-site Intermodulation (IM) and documentation specific to the site frequencies including Locality Interface stations installed at each site.

2.3.3 Assist in Developing a Commonwealth Interoperability Manual for Participating Agencies

HSMM will assist the STARS Team in developing an Interoperability Manual that has as its focus the ability of the twenty participating Commonwealth Agencies to communicate with each other**.** With the focus on the end result, it is clear that interoperability involves more than just a technical solution. In order for interoperability to be successful, there must be careful and extensive planning and training for all of those involved. The planning must be done well in advance.

The manual will outline a plan for agencies to successfully engage in:

- Day-today interoperability, which covers routine public safety and public service operations,

- Mutual aid interoperability, which supports a joint and immediate response to catastrophic accidents, large-scale incidents and natural disasters. It supports tactical communications in response to airplane crashes, bombings, forest fires, earthquakes, hurricanes, and other similar events that occur without warning,

- Task force interoperability, which supports local, state, and federal agencies collaborating for an extended period of time to address a particular problem. For

example, a task force might lead extended recovery operations, provide security for major events, or respond to prolonged criminal activity. These are activities that are planned in advance.

HSMM will first develop a survey form that requests specific information from each participating Commonwealth Agency. HSMM will review the survey form with the STARS Program Director, and upon finalization of the form and approval by the STARS Program Director, will provide it to the STARS Program Director for distribution to the participating Commonwealth Agencies. The STARS Program Director will provide the responses from the Agencies to HSMM and they will then enter the information into a database. The consolidated results from these surveys will be discussed with the STARS Program Director and upon the STARS Program Director concurrence will form the basis for part of the Interoperability Manual.

HSMM will conduct a workshop with the STARS Team to review a Draft of the Interoperability Manual. Comments will be collected at this workshop and incorporated into a Final Interoperability Manual.

Prior to developing the draft Interoperability Manual, HSMM will initially provide an Agency Interoperability Manual description document, which will contain the conditions, anticipated for the analysis, and a description of the documentation to be provided. HSMM will require that the STARS Program Director approve the *Agency* Interoperability Manual description document within ten working days.

2.3.4 Assist in Interoperability User Training for participating Agencies

HSMM will develop agency specific and VSP division specific interoperability training lesson plans based upon the approved Agency Interoperability Manual. HSMM will work with the VSP Training Academy to incorporate and follow all identified procedures and guidelines.

HSMM will conduct a workshop with the STARS Team to review a Draft of the Interoperability Training Lessons. Comments will be collected at this workshop and incorporated into the Final Interoperability Training Lessons.

HSMM trainers will provide seven train-the-trainer courses for use in training law enforcement subscriber users, dispatch, and console equipment users. HSMM trainers will provide training classes in each of the seven divisions, either in person or via satellite, to all non-law enforcement subscriber users, dispatch, and console equipment

users. HSMM will provide multiple sets of training materials for each agency, with a soft copy to the Commonwealth, which may be used to develop additional sets of materials. HSMM will videotape the sessions, and provide one DVD of one session for each agency to the STARS Program Director

2.3.5 Assist in Developing a Commonwealth Interoperability Manual for Localities

HSMM will assist the STARS Team in developing an Interoperability Manual that will focus on how Commonwealth Localities can interoperate with STARS**.** With the focus on the end result, it is clear that interoperability involves more than just a technical solution. In order for interoperability to be successful, there must be careful and extensive planning and training for all of those involved. The planning must be done well in advance.

HSMM will first develop a survey form that requests specific information from each Commonwealth Locality. HSMM will review the survey form with the STARS Program Director, and upon finalization of the form and approval by the STARS Program Director, will provide it to the STARS Program Director for distribution to the Commonwealth Locality. The STARS Program Director will provide the responses from the Localities to HSMM and they will then enter the information into a database. The consolidated results from these surveys will be discussed with the STARS Program Director and upon the STARS Program Director concurrence will form the basis for part of the Locality Interoperability Manual.

HSMM will conduct a workshop with the STARS Team to review a Draft of the Interoperability Manual. Comments will be collected at this workshop and incorporated into a Final Interoperability Manual.

Prior to developing the draft Interoperability Manual, HSMM will initially provide a Locality Interoperability Manual description document, which will contain the conditions, anticipated for the analysis, and a description of the documentation to be provided. HSMM will require that the STARS Program Director approve the Locality Interoperability Manual description document within ten working days.

2.4 COMMUNICATIONS CENTER UPGRADES SUPPORT

Services entail review and support of the Communications Center Upgrades in VSP Divisions 1, 4, 5, and 7 as identified and described in the original SI contract.

2.4.1 Review SI Site Surveys

HSMM will review the SI Communications Center survey information for completeness and adequacy. In an effort to determine completeness and adequacy they will compare the information against the June 26, 2001 VSP Infrastructure Evaluation Report and assess this information for general reasonability. For each survey or concurrent group of surveys provided, HSMM will provide to the STARS Program Director comments on the SI supplied survey information. HSMM will provide a single review of each Communications Center survey.

2.4.2 Review SI Geotechnical Analysis

HSMM will review the SI's geotechnical analyses for applicability and adequacy. HSMM will only be responsible for reviewing geotechnical analysis that have been submitted to the Commonwealth by a firm who specializes in such analyses and whose documentation is certified by a Professional Engineer registered in the Commonwealth of Virginia. HSMM will provide a recommendation to the STARS Program Director of acceptance or rejection of the analysis. HSMM will provide a single review of each Communications Center geotechnical analysis.

2.4.3 Perform Environmental Impact Report

HSMM will perform an environmental impact report for each Communications Centers in Divisions 1, 4, 5, and 7, in accordance with Virginia Code, Chapter 10.1-1188.

2.4.4 Review Site Contract Modifications

HSMM will review the technical merit and cost estimates for SI provided construction contract modifications for reasonableness and completeness. They will compare the cost estimates of the Contract Modifications with those from other similar construction projects. HSMM will provide Cost Estimate Review Comments to the STARS Program Director for each Communications Center. The STARS Program Director will provide HSMM the change order for each Communications Center. HSMM will provide an initial review, and a final review after the SI has made the appropriate changes.

2.4.5 Review SI Documents and Construction Specifications

HSMM will review SI's prepared documents and construction specifications for each Communications Center. This will include documentation for site work, grounding,

fencing, security, power systems, and buildings. Upon receipt of documentation for each Communications Center containing such information as site plans, grounding design plans, fencing plans, security plans, equipment room layouts, equipment room specifications, power drain schedules, breaker allocations, single line primary/backup power drawings, HVAC calculations, building security and alarms schedules, fire suppression drawings and technical support data, and any other drawings or information required for a complete review by HSMM, they will review such drawings and information for applicability, adequacy and reasonableness. HSMM will provide single Facilities Review Comments for each Communications Center to the STARS Program Director, containing the results of our review and our recommendations.

2.4.6 Monitor and Inspections of SI Construction

HSMM will provide assistance during SI Construction of each Communications Center.

HSMM will perform two inspections during the critical civil construction periods. HSMM will develop a punch list for each site, describing deficiencies that must be corrected by the SI. HSMM will review and comment on the SI's ongoing design effort consisting of such items as the transmittals, drawings, and the like for the duration of the upgrade.

HSMM will review design submittals, comment, and make recommendations. They will work with the STARS Team to verify that the submittals are complete and appropriate to the requirements of the SI original contract.

HSMM will conduct a final inspection of the Communications Center upgrade to monitor equipment installation in progress and identify discrepancies and problems while they are still manageable.

2.4.7 Review SI R-56 Audit

HSMM will review SI provided R-56 Audit reports for adequacy and appropriateness. For each review, HSMM will provide comments recommending acceptance or appropriate modification. HSMM will provide a single review of each Communications Center Audit.

2.4.8 Conduct Grounding Testing

HSMM will independently test and document the grounding at each of the Communications Centers in the following general manner:

- Manual switchover to generator power, disconnecting Power Company for site
- Disconnect power company ground from ground buss
- Measure site ground resistance
- Return site to operational configuration

This test should occur within one hour's time and will not have an impact on the continued operations of the Communications Center.

HSMM will establish the test procedure and criteria in accordance with R-56. HSMM will submit a document that lists the measurements at the sites and make recommendations of correcting any sites that have inadequate grounding. HSMM will provide a single test for each Communications Center.

2.5 IV&D, MICROWAVE, AND TUNNEL DESIGN REVIEW SUPPORT

2.5.1 Assist with SI Equipment Lists and Detailed Documents Review

HSMM will assist in the review of SI supplied equipment lists and detailed documentation, as directed by the STARS Program Director. HSMM will provide a first pass review of the lists and documentation for each site and will provide the STARS Program Director with comments documenting deviations or deficiencies. HSMM will provide a final review of the lists and documentation after correction by the SI, and will provide the STARS Program Director with comments that either recommends acceptance or modification of the lists and documentation, with the rationale for modification.

In order to facilitate the assessment of equipment lists and documents, HSMM will attend design review meetings, to assist the STARS Team in reviewing the SI's IV&D network, Alarm and Control, Microwave network, and Tunnel subsystem designs to validate against the SI contract. The initial IV&D, Alarm and Control, and Tunnel meeting would be part of the overall statewide design, and would establish and confirm the system architecture and overall design, as well as the migration plan, the fleet mapping process, and other considerations. HSMM will participate in the additional design reviews associated with each implementation phase, which will address the specific phase design, siting, cutover, and other technical and operational considerations.

2.5.2 SI IV&D Coverage Analysis and Site Selection Review

HSMM will review the SI's coverage analysis for each phase, and review the site selection for each new IV&D site, as defined in the original SI contract. Included in each analysis will be a review of the site parameters for each site, a general review of the suitability and appropriateness of their analysis, a review of the changes in coverage guarantee resulting from the analysis, and comments to the STARS Program Director. Included in each site selection review will be a review of the SI's siting criteria, an examination of the site selection on a topographic map to identify features that may affect the site coverage, and a review of any identified mitigating conditions that may affect the suitability of the site. HSMM will provide one set of comments for each IV&D site reviewed to the STARS Program Director.

2.5.3 SI IV&D Network Capacity Design Documentation and Capacity Analysis Review

HSMM will review and comment on the SI's IV&D Network Capacity Design. Review will be system wide. HSMM will independently analyze voice and data capacity using an LMR optimized Erlang C analysis techniques, and will provide a review and comment to the STARS Program Director. HSMM will provide review and comment of the Initial SI Capacity Analysis prior to beginning the first phase, an additional review and comment at the beginning of each succeeding phase, and a final review and comment after the project is completed.

2.5.4 SI Microwave Capacity Design Documentation and Analyses Review

HSMM will review the SI's Microwave Capacity Design. The review will be system wide and HSMM will independently analyze capacity using standard Microwave Circuit analysis techniques, and will provide a review and comment to the STARS Program Director. HSMM will provide review and comment of the Initial SI Capacity Analysis and a final review and comment after the project is completed.

2.5.5 SI Tower Capacity Design Documentation and Analyses Review

HSMM will review the SI's Tower Capacity Design Analyses and Documentation for applicability and adequacy. HSMM will only be responsible for reviewing Tower Capacity Design Analysis that have been submitted to the Commonwealth by a firm who specializes in such analyses and whose documentation is certified by a Professional

Engineer registered in the Commonwealth of Virginia. HSMM will provide comments to the STARS Program Director recommending acceptance or rejection of the analysis. HSMM will provide a single review of each site.

2.5.6 SI Alarm Assignments and Designated Digital Outputs for the Alarm and Control Subsystem Review

The IV&D and Microwave networks will interface with an alarm and control network. All facilities, towers, and radio sites are expected to have remote alarms to notify the network operator of intrusion alarms and network operators of system and equipment malfunctions. HSMM will review the SI established available alarm and control conditions (number and types of inputs and outputs) at each site and will make a single set of recommendations to the STARS Program Director regarding those groupings and displays.

HSMM will also review the alarm and control groupings and displays at the NOC and Division 6 Communications Center, and will make a single set of recommendations to the STARS Program Director regarding those groupings and displays.

2.6 IV&D, ALARM AND CONTROL NETWORK, MICROWAVE, AND TUNNEL SITE DEVELOPMENT SUPPORT

2.6.1 Review SI Site Survey

HSMM will review the SI's IV&D, Alarm and Control Network, and/or Microwave survey information for completeness and adequacy. In an effort to determine completeness and adequacy HSMM will compare the information against the June 26, 2001 VSP Infrastructure Evaluation Report and assess for general reasonability. For each survey or concurrent group of surveys provided, HSMM will provide to the STARS Program Director a list of deficiencies found in the SI supplied survey information. HSMM will provide a single review of each IV&D and/or Microwave site survey.

2.6.2 Review SI Towers, Equipment Rooms, Power Systems, Antenna Support Structures, and Buildings Documentation

HSMM will review the SI's transmitter site documentation for towers, equipment rooms, power systems, antenna support structures, and buildings. Upon receipt of documentation containing such information as tower drawings, equipment room layouts, equipment room specifications, power drain schedules, breaker allocations, single line

primary/backup power drawings, antenna layouts, antenna support drawings, HVAC calculations, building security and alarms schedules, fire suppression drawings and technical support data, and any other drawings or information required for a complete review by HSMM, they will review such drawings and information for applicability and adequacy and reasonableness. For each site, HSMM will provide to the STARS Program Director a critique of the SI supplied survey information.

2.6.3 Review SI Geotechnical Analysis

HSMM will review the SI's geotechnical analyses for applicability and adequacy. HSMM will only be responsible for reviewing geotechnical analysis that have been submitted to the Commonwealth by a firm who specializes in such analyses, and whose documentation is certified by a Professional Engineer registered in the Commonwealth of Virginia. HSMM will provide comments to the STARS Program Director recommending acceptance or required modifications to the analysis. HSMM will provide a single review of each IV&D and/or Microwave site.

2.6.4 EME Compliance

2.6.4.1 EME Analysis

The FCC has established (in USC 47) the Maximum Permissible Exposure (MPE) for RF radiation for various conditions. Each Communications Center, IV&D, Microwave, Area Office, and Tunnel site will be reviewed to determine the MPE.

HSMM will request information from both the Commonwealth and the SI to document anticipated transmitter information. HSMM will perform EME computer studies, including all operational radio emitters at each site. The analysis will follow the FCC guidelines and measurement procedures for identifying potential harmful human exposure to radio frequency electromagnetic emissions.

HSMM will provide the STARS Program Director a document containing our results and recommendations to include: measurement of the combined emission levels; comparison of the emission levels to the permissible exposure levels allowed by the FCC; identification of dangerous emission level exposure areas and time limitations for workers performing work near the emitters; summary of recommendations and guidelines to minimize EME exposure to workers and the general public; chart stating safe time durations for areas in relation to the emitters at each radio site; and appropriate warning

signs and EME detection equipment required. HSMM will provide a single analysis of each Communications Center, IV&D, Microwave, Area Office, and Tunnel site.

2.6.4.2 EME Measurement

Should the computer study show that field measurements are necessary, HSMM will advise the STARS Program Director. Field measurement testing and report findings are provided as additional services, if required.

2.6.4.3 EME Compliance Site Re-Design

Should field measurement validate that signage and worker training prove inadequate to bring the site in FCC EME compliance, HSMM will negotiate with the Commonwealth a change order to bring the site into full compliance with the FCC EME requirements.

2.6.5 Review SI Documents and Construction Specifications

HSMM will review the SI's prepared documents and construction specifications for New (sites not currently part of the VSP infrastructure) IV&D and/or Microwave transmitter sites. This will include documentation for site work, grounding, fencing, security, towers, equipment rooms, power systems, antenna support structures, and buildings. Upon receipt of documentation for each new IV&D and/or Microwave site containing such information as site plans, grounding design plans, fencing plans, security plans, tower drawings, equipment room layouts, equipment room specifications, power drain schedules, breaker allocations, single line primary/backup power drawings, antenna layouts, antenna support drawings, HVAC calculations, building security and alarms schedules, fire suppression drawings and technical support data, and any other drawings or information required for a complete review by HSMM, they will review such drawings and information for applicability and adequacy and reasonableness. HSMM will provide Review Comments for each IV&D and/or MW transmitter site to the STARS Program Director, containing the results of the review and their recommendations.

2.6.6 Assist in Monitor and Inspections of SI Site Development

HSMM will provide monitoring during SI Construction of each IV&D, Microwave, and Tunnel site.

HSMM will perform inspections at the following critical civil construction points: (1) tower excavation ready for concrete (Pier 1); (2) prior to shelter wall concrete pour; (3)

before tower erection (new site) or modification (existing site) complete. HSMM will perform inspections at the following critical electrical construction points: (1) following grounding ring (before concrete placement and backfill) (2) electrical UPS/generator tests. HSMM will assist in the development of a punch for each site, describing deficiencies that must be corrected by the SI. HSMM will review and comment on the SI's ongoing design effort consisting of such items as the transmittals, drawings, and the like for the duration of the site work.

HSMM will review design submittals, comment, and make recommendations. We will work with the STARS Team to verify that the submittals are complete and appropriate to the requirements of the SI original contract.

If requested, HSMM will conduct a final inspection of each site to assess site work and equipment installation and assess punch list resolution and provide recommendation for site acceptance.

2.6.7 Site Grounding Support

2.6.7.1 Assist in Review of SI Grounding Installation

HSMM will assist in the review of grounding design drawings for each new (sites not currently part of the VSP infrastructure) IV&D and/or Microwave site and will inspect each site up to two times to establish conformance to the requirement in the original SI contract. HSMM will provide the STARS Program Director a review and comment for each inspection visit (or group of visits if they occur in the same time frame). HSMM requires the Commonwealth to provide, for each site, a statement of site readiness, and that when HSMM visits the site(s) it will indeed be ready for inspection.

2.6.7.2 Review SI Grounding Testing

HSMM will review the SI provided grounding test reports for adequacy and appropriateness for each new (sites not currently part of the VSP infrastructure) IV&D and/or Microwave site. For each review, HSMM will provide a recommendation of acceptance or modification, with the reasoning for modification described.

2.6.7.3 Review SI R-56 Audit

HSMM will review SI provided R-56 Audit reports for adequacy and appropriateness for each existing (sites currently part of the VSP infrastructure) IV&D and/or Microwave site.

For each review, HSMM will provide recommendation of acceptance or modification, with the reasoning for modification described.

2.6.7.4 Conduct Grounding Testing

HSMM will independently test and document the grounding at existing sites (sites currently part of the VSP infrastructure). HSMM will establish the test procedure and criteria in accordance with R-56. HSMM will submit a document that lists the measurements at the sites and make recommendations of correcting any sites that have inadequate grounding.

2.7 COMMONWEALTH SUBSCRIBER SUPPORT

2.7.1 Assist with Assessment of Commonwealth Agencies' Migration Plans

HSMM will assist the STARS Team in providing input and reviewing the SI Detailed Migration Plan for existing land mobile radio, mobile data, microwave radio networks, and leased lines. HSMM will also assist the STARS Team in reviewing the migration plans for each individual Agency and provide review and comment describing any difficulties discovered, and explaining changes that might be made to the plan to the STARS Program Director. Each migration plan will then be revised by the SI, and provided to the STARS Program Director in final form. HSMM will assist the STARS Team in reviewing the final migration plans for each Agency and provide final review and comment to the STARS Program Director.

2.7.2 Assist with Updating of Agency Migration Plans

HSMM will assist the STARS Team with the update of the Agency migration plans as conditions change, on an annual basis. HSMM will review each migration plan update, and will work with the SI and STARS Team in up to two meetings and two review cycles, the intent of which is to minimize the impact of migration on each participating Commonwealth Agency, while bringing that Agency on line on the system in an expedient manner consistent with the Agency's operational situation.

2.7.3 Assist with Development of Fleetmaps

HSMM will assist the STARS Program Director in development and/or review of Commonwealth responsibilities with regard to fleetmaps, to include the following:

- Select desired operational features

- Establish Site or System Roaming parameters
- Select desired priorities
- Obtain Customer Radio User Specific Org. Chart
- Identify Agencies and Work Groups
- Describe operations process & work group Comm. Needs
- Create Talkgroup Structure based on operational Needs
- Select Failsoft Channel Talkgroups
- Select Desired Emergency Protocols
- Define DIGITAL & ANALOG ID Ranges
- Define 1st Pass Individual ID Plan
- Separate RIDs (Radio IDs) into Zones
- Assign Aliases for Talkgroups
- Assign ID ranges
- Create Zone map/layout
- Create spreadsheet templates
- Define Console Resources per Folder
- Define Operator Position Requirements (paging, multiselect, patch etc.)

2.7.4 Radio-Programming Templates Review

HSMM will assist the STARS Team in the review of templates to compare them with fleetmapping requirements, and also with personality requirements on a user class basis. This review will consist of up to five (5) programming templates per type of radio model, per agency with the exception of VSP, which will receive seven (7) templates, and one unique programming template for each individual control station location.

2.7.5 User Training

2.7.5.1 SI User Training Course Material Review for Law Enforcement

HSMM will review and comment on the operator training outline, presentation, handouts, and documentation packages that the SI will prepare for provision to the students. HSMM will make a second review after SI corrects the deficiencies, and provide the STARS Program Director with comments recommending acceptance or further modification of the training course, with the rationale in the event the recommendation is modification.

2.7.5.2 User Training for Non-Law Enforcement

HSMM will monitor and attend one or more of the Law Enforcement user training sessions conducted by the SI. HSMM will modify the training course to develop a non-law enforcement user-training lesson. HSMM will work with the STARS Program Director and the VSP Training Academy to incorporate and follow all identified procedures and guidelines.

HSMM will conduct a workshop with the STARS Team to review a Draft of the Non-Law Enforcement Training Lessons. Comments will be collected at this workshop and incorporated into the Final Non-Law Enforcement Training Lessons.

HSMM trainers will provide up to three training classes in each of the seven Divisions, either in person or via satellite, to all non-law enforcement subscriber users. HSMM will provide multiple sets of training materials for each agency, with a soft copy to the Commonwealth, which may be used to develop additional sets of materials. HSMM will videotape the sessions, and provide one DVD of one session for each agency to the STARS Program Director

2.8 COMMONWEALTH POLICIES AND PROCEDURES SUPPORT

HSMM will assist the Commonwealth in the development of system and operational level policies and procedures for STARS. These policies and procedures will provide the framework for the proper operation of the IV&D network and required subsystems. These policies and procedures are intended to provide operational, management, and administrative personnel the necessary guidelines for the effective use and maintenance of STARS.

HSMM will work with the STARS Program Director to determine the required quantity of policies and procedure as well as the substance of each policy and procedure. HSMM will work with the STARS Program Director to develop a schedule of delivery for each policy and procedure. HSMM will then develop the initial draft of each policy and procedure and provide to the STARS Program Director for review and comment. HSMM will work with individual members of the STARS team and the System Integrator to revise the initial draft of each policy and procedure. HSMM will consolidate and incorporate all comments from the individual STARS team members and the Systems Integrator and provide a preliminary final version of each policy and procedure to the STARS Program Director for review and comment. Comments will be

incorporated and a final version of each policy and procedure will be provided to the STARS Program Director.

At the request of the STARS Program Director, and as additional services, HSMM can provide a train-the-trainer class for each of the policies and procedure developed.

3.0 ACCEPTANCE

3.1 TEST PLAN AND PROCEDURES REVIEW

HSMM will provide standard and customary review, analysis and editing of all SI information, submitted by the STARS Program Director, for which they are contracted. HSMM will further provide independent analysis as to reasonability of the SI documentation as well as a listing of noted deficiencies found during the review of contracted documents. HSMM does not warrant the accuracy of the information contained in the documentation as presented by the SI.

3.1.1 SI Test Plans Review

HSMM will review Acceptance Test Plans. The STARS Program Director will provide these plans to HSMM, for review and comment.

HSMM will make an initial review of the test plans, and will provide preliminary comments and edits to the STARS Program Director describing the completeness of the set, the applicability of the tests, and in general what else would be required for a complete test plan. After the SI provides the updated test plan, HSMM will make a second, interim review, and again provide interim comments and edits to the STARS Program Director describing their findings and recommendations. The SI will then provide their final test plan, and HSMM will make the final edits. The final comments will recommend acceptance of the test plan.

3.1.2 SI Factory Test Plan and Procedures Review

The SI will factory stage the IV&D Network and Alarm and Control subsystem in Schaumburg, Illinois prior to shipment to the sites. Microwave factory staging will take place at the microwave manufacturer's staging location.

HSMM will assist in the review of revisions to the IV&D, and Microwave Staging Test Plans and Staging Test Procedures. HSMM will assist in the review of Alarm and Control Staging Test Plans and Staging Test Procedures. The STARS Program Director will provide these plans and procedures to HSMM for review and comment.

HSMM will make an initial review of the plans and procedures, and will provide preliminary comments to the STARS Program Director describing the completeness of the set, the applicability of the tests, and in general what else would be required for a

complete test plans and procedures. After the SI provides the updated test plans and procedures, HSMM will make a second, interim review, and again provide interim comments to the STARS Program Director describing their findings and recommendations. The SI will then provide their final test plans and procedures, and HSMM will make a final review. The final comments will recommend acceptance or modification of the test plans and procedures, with rationale for modification.

3.1.3 SI Field Test Procedures Review

HSMM will assist in the review of Field Test Procedures. The STARS Program Director will provide these plans and procedures to HSMM.

HSMM will make an initial review, and will provide preliminary comments to the STARS Program Director describing the completeness, the applicability of the tests, and in general what else would be required for a complete test procedure. After the SI provides the updated test procedures, HSMM will make a second, interim review, and again provide interim comments to the STARS Program Director describing their findings and recommendations. The SI will then provide their final test procedures, and HSMM will make a final review. The final comments will recommend acceptance or modification of the test procedures, with rationale for modification.

3.2 TESTING SUPPORT

3.2.1 Witness Factory Acceptance Testing

HSMM will assist the STARS Team in witnessing the Zone 1 and Zone 2 IV&D Factory Staging events. HSMM will develop a punchlist of the deficiencies found during staging and these items can be corrected and re-tested at staging or corrected and re-tested in the field. HSMM will provide to the STARS Program Director documentation of each staging event.

3.2.2 Witness MW Factory Acceptance Testing

HSMM will assist the STARS Team in witnessing one MW Factory Staging. HSMM will develop a punchlist of the deficiencies found during staging and these items can be corrected and re-tested at staging or corrected and re-tested in the field. HSMM will provide to the STARS Program Director documentation of the staging event.

3.2.3 Witness IV&D Field Acceptance Testing

HSMM will assist the STARS Team in participating in acceptance testing. HSMM will further assist the STARS Team in reviewing the test reports and raw data supplied by the SI. HSMM will assist the STARS Team in developing written comments, to be provided to the STARS Program Director, recommending acceptance or rejection of all or portions of the tests.

3.2.4 Witness Microwave Field Acceptance Testing

HSMM will assist the STARS Team in participating in acceptance testing. HSMM will further assist the STARS Team in reviewing the test reports and raw data supplied by the SI. HSMM will assist the STARS Team in developing written comments, to be provided to the STARS Program Director, recommending acceptance or rejection of all or portions of the tests.

3.2.5 Witness Coverage Acceptance Testing

HSMM will assist the STARS Team in witnessing coverage acceptance testing for each Communications Zone and In-tunnel subsystem as defined in the original SI contract. HSMM will assist the STARS Team in reviewing the coverage test reports and raw data supplied by the SI. HSMM will assist the STARS Team in developing written comments, to be provided to the STARS Program Director, recommending acceptance or rejection of all or portions of the tests.

3.2.6 Participate, as a Commonwealth Representative, in Testing Activities

HSMM can provide personnel to participate as a Commonwealth representative in all testing activities, upon written request by the STARS Program Director. HSMM will negotiate with the Commonwealth a change order commensurate with the level of participation required.

3.3 VERIFICATION SUPPORT

3.3.1 SI Claims of “Unusually High” Noise Present

HSMM will perform noise measurements at locations where the SI claims high noise has affected their coverage testing. HSMM will only test at radio sites where the antennas experiencing noise are mounted on the tower, and the noise measurement can be made at

the ground end of the coaxial cable. HSMM will make noise measurements at mobile locations using a calibrated transportable antenna. HSMM will compare the results of the measurements with the information supplied by the SI and provide documentation to the STARS Program Director, recommending acceptance or rejection of the SI claims.

3.3.2 SI Tested Coverage Deficiencies

HSMM will perform detailed RF measurement studies, to investigate and analyze reported coverage deficiencies within a Communications Zone. HSMM will provide a site coverage deficiency analysis plan containing the measurement conditions and a description of the deliverables anticipated to the STARS Program Director for review and approval prior to embarking on each measurement study. Upon approval of the site coverage deficiency analysis plan, HSMM will use it's proprietary RaCE Radio Coverage Evaluator (RaCE) $^{SM\ [patent\ pending]}$ measurement system to collect data for that site, will analyze that data, and will provide data, analysis, and if indicated, mitigation recommendations to the STARS Program Director. A complete description of the HSMM proprietary Radio Coverage Evaluator (RaCE) $^{SM\ [patent\ pending]}$ facility will be provided to the STARS Program Director for review prior to the implementation of this task.

3.4 AS-BUILT DOCUMENTATION SUPPORT

3.4.1 SI's IV&D As-Built Documentation

HSMM will review all IV&D as-built documentation provided to determine adequacy and applicability. HSMM will request the documentation from the STARS Program Director after each site is completed, and also for each Division. HSMM will perform an initial review and provide recommended improvements to the STARS Program Director. HSMM will perform a final review of the revised documentation and recommend approval or additional required document improvements to the STARS Program Director.

3.4.2 SI's Microwave As-Built Documentation

HSMM will review all Microwave as-built documentation provided to determine adequacy and applicability. HSMM will request the documentation from the STARS Program Director after each site is completed, and also for each Division. HSMM will perform an initial review and provide recommended improvements to the STARS Program Director. HSMM will perform a final review of the revised documentation and

recommend approval or additional required document improvements to the STARS Program Director.

3.5 USER INDEPENDENT VERIFICATION & VALIDATION (IV&V)

3.5.1 User IV&V– Division 1

For a period of 90 days after Division 1 IV&D cutover to the new system there will be a User IV&V process, in which HSMM will assist the STARS Team in the development and implementation on the process. Through a process of specifically designed forms, the problems perceived by the users will be collected and collated. These concerns will be responded to and the results applied to future system parameters, equipment functionality, Agency migration plans, and user training. The User IV&V process will proactively solicit user responses, which is an extremely important part of user acceptance of the system. Since a current system, which may be perceived as adequate by some users and inadequate in various aspects by others (but is nevertheless a known entity) is being replaced by a much higher level of technology at a substantial cost, and with considerably different operating conditions, it is important that the users understand that they are an important part of the Team. The User IV&V allows this to occur.

3.5.1 User IV&V – Division 2 - 7

For a period of 90 days after each of the remaining Divisions 2-7 IV&D cutover to the new system there will be a User IV&V process, in which HSMM will assist the STARS Team in implementing the process. Through a process of specifically designed forms, the problems perceived by the users will be collected and collated. These concerns will be responded to and the results applied to future system parameters, equipment functionality, migration plans, and user training. The User IV&V process will proactively solicit user responses, which is an extremely important part of user acceptance of the system. Since a current system, which may be perceived as adequate by some users and inadequate in various aspects by others (but is nevertheless a known entity) is being replaced by a much higher level of technology at a substantial cost, and with considerably different operating conditions, it is important that the users understand that they are an important part of the Team. The User IV&V allows this to occur.

4.0 NETWORK OPERATIONS CENTER & VSP COMMUNICATIONS CENTER DIVISION 6

HSMM will provide professional services for this project consistent with the Commonwealth's Construction and Professional Services Manual, as revised, and latest directives issued by the Division of Engineering and Buildings concerning construction and professional services for new and renovated State buildings and as further clarified in this document. New site will be a Communications Center at VSP Division 6 Headquarters and the renovated site will be a Network Operations Center (NOC) and office facility located at Virginia State Police Headquarters.

4.1 PLANNING AND PRE-DESIGN SERVICES

4.1.1 Pre-Planning Coordination and Programming (NOC Upgrade)

HSMM will meet with the Commonwealth and the Systems Integrator (SI) to determine needs for the upgrade of the existing facility. As part of the meeting, HSMM will request As-Built information (drawings, specs, reports, etc.) of the facility to be upgraded, and tour the existing facility to be upgraded.

HSMM will explain the programming requirements for the Upgraded Facility to the STARS Team and the SI. Meeting results will be recorded in minutes by HSMM for the STARS Team.

4.1.2 Pre-Planning Coordination and Programming (VSP Division 6 New Facility)

HSMM will work with the Commonwealth to determine needs for the design of the new facility. HSMM will prepare Interview Questionnaires to determine space needs and facility performance criteria for the Division 6 New Facility for the STARS Program Director to acquire information. HSMM will distribute the Questionnaires at a meeting in Richmond with the STARS Program Director. As part of the meeting, HSMM will request As-Built information (drawings, specs, reports, etc.) of the new facility site.

HSMM will explain the programming requirements for the New Facility to the STARS Team. Meeting results will be recorded in minutes by HSMM for the STARS Team.

4.1.3 Design Workshop I (NOC Upgrade)

HSMM will conduct a design workshop with the STARS Team and the SI to establish preliminary schematic concepts for the NOC. Preliminary "block plans" will be developed for further refinement in the Pre-Planning Study.

4.1.4 Design Workshop I (VSP Division 6 New Facility)

HSMM will conduct a design workshop to establish preliminary schematic concepts for the Division 6 New Facility. Additionally, a General Performance Standard Criteria will be defined and preliminary "block plans" will be developed for further refinement in the Pre-Planning Study.

4.1.5 Detailed Survey (NOC Upgrade)

Following the Design Workshop I, HSMM will review the as-built documentation of the existing Facility. Typical materials supplied usually include drawings, specifications, lead-based paints and asbestos containing materials reports, etc. Discipline engineers will review these documents, as the survey is prepared. Using the As-Built information, HSMM will develop CADD files in AutoCAD of the existing facility. These will be used during the site survey and for use as background drawings for the Space Study Report.

HSMM discipline engineers will conduct a site survey in order to compare As-Built information and document updated plan schematics. The survey will also permit the engineers to collect additional information on existing engineering systems to be modified and identify other factors that may impact the upgrade design. As-Built documents will be updated. Plan schematics and a narrative documenting existing architectural and engineering building systems will be prepared.

4.1.6 Detailed Survey (VSP Division 6 New Facility)

Following the Design Workshop I, HSMM will review the as-built documentation of the existing Facility. Typical materials supplied usually include drawings, specifications, lead-based paints and asbestos containing materials reports, etc. Discipline engineers will review these documents, as the survey is prepared. Using the As-Built information, HSMM will develop CADD files in AutoCAD of the existing facility. These will be used during the site survey and for use as background drawings for the Space Study Report.

HSMM will conduct a complete topographic and subsurface and aboveground utility survey of the area where the Division 6 Network Operations Center will be constructed or modified. HSMM will verify coordinates and actual elevation of tower location, and the required landscaping, easements, stormwater, underground tanks, and erosion concerns. Surveyors will be registered in the Commonwealth of Virginia.

4.1.6.1 Field Survey

HSMM will provide services required to survey and confirm locations of existing elements for the purpose of identifying existing conditions that may reasonably affect the work, including, but not limited to, existing site improvements, landscaping, and underground utilities. The Commonwealth will provide existing as-built drawings, but HSMM services will include field verification of such drawings. The Commonwealth will provide ready access to the property to be surveyed. The Commonwealth will remove portable structures or vehicular equipment, and debris from the site as necessary to facilitate the work. The A/E's obligation hereunder, however, shall in no way absolve the Contractor of its obligation under the Underground Utility Damage Prevention Act, Virginia Code § 56-265.14 – 265.32.

HSMM will provide survey services to assist the Commonwealth in making changes to the existing site. HSMM will recommend the performance of destructive testing or to investigate concealed or unknown conditions where these conditions can be reasonably anticipated and will have an impact on design or construction costs. If the Commonwealth does not provide documentation or information beyond that which is readily apparent by non-intrusive observations of the existing facility and/or the Commonwealth does not contract with HSMM or others to perform destructive testing or to investigate concealed or unknown conditions, as requested or recommended by HSMM, the Commonwealth will assume the cost of the Architect's change in services or Additional Services, if any, for all unknown or concealed conditions that are encountered during construction that require changes in the design or construction of the Project.

4.1.6.2 Subsurface Utility Location Services

The Commonwealth and HSMM acknowledge and agree that the Commonwealth may request and HSMM can furnish or obtain from others the services of a subsurface utility location service provider.

HSMM agrees to fully cooperate with the Commonwealth in pursuing its rights hereunder and under this Agreement, including, without limitation, (i) bringing any legal action necessary to enforce Commonwealth's or HSMM's rights against the subsurface

utility location service provider, or (ii) assignment to Virginia State Police of any rights or remedies HSMM may have against the subsurface utility location service provider relating to any such acts, errors, omissions or willful misconduct, or any claims, costs, damages, demands, expenses, fees, fines, liabilities, losses, penalties, suits, or causes of action.

Commonwealth acknowledges that subsurface geophysical methods for the collection and depiction of existing subsurface utility and other data may vary in their effectiveness because of geology, backfill type and homogeneity, utility material type, methods of joining utility segments, utility condition, depth, soil moisture, other nearby buried objects, ground surface type and smoothness, ambient noise, ambient temperature, surface conditions, stray and/or interfering energy fields, and equipment manufacturer's biases. Commonwealth further acknowledges that there may be significant differences in techniques, methodology, equipment requirements, and cost between identifying the potential presence of a subsurface utility or other object and mapping the physical horizontal and vertical location and dimensions of a subsurface utility or other object. Therefore, HSMM will provide "Utility Quality Level C" services (as defined in the American Society of Civil Engineers' "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data," CI/ASCE 38-02, 2003). In the event the Commonwealth desires HSMM to provide "Utility Quality Level B" or "Utility Quality Level A" services, HSMM will procure such services from a subsurface utility location service provider on behalf of the Commonwealth as an Additional Service.

4.1.7 Perform Environmental Impact Report (NOC Upgrade)

HSMM will perform an environmental impact report for the NOC Upgrade site, in accordance with Virginia Code, Chapter 10.1-1188.

4.1.8 Perform Environmental Analysis (VSP Division 6 New Facility)

HSMM will perform an environmental impact report for the Division 6 new facility site, in accordance with Virginia Code, Chapter 10.1-1188

4.1.9 HazMat Survey (NOC Upgrade)

HSMM will provide services to conduct a HazMat survey, consisting of the coordination and monitoring of sampling of Lead-Based paint and Asbestos Containing Materials by HazMat Consultant. HSMM notes that such sampling efforts may not be readily

scheduled with the survey Team or users due to potential health risks, requiring a separate site visit.

4.1.10 HazMat Survey (VSP Division 6 New Facility)

HSMM will provide services to conduct a HazMat survey, consisting of the coordination and monitoring of sampling of Lead-Based paint and Asbestos Containing Materials by HazMat Consultant. HSMM notes that such sampling efforts may not be readily scheduled with the survey Team or users due to potential health risks, requiring a separate site visit.

4.1.11 Hazard Abatement (NOC Upgrade)

HSMM will negotiate with the Commonwealth a change order to subcontract with a firm specializing in Hazard Abatement, should the need arise. Costs for this requirement will be dependent on the application, and will be provided upon determination that such a need exists and assessment of the level of abatement necessary.

4.1.12 Geotechnical Services

HSMM will contract to provide services required for preparation and submission of the Geotechnical Design Summary Report, which is to describe the subsurface conditions anticipated and the influence these anticipated subsurface conditions may have upon the design. The report is also intended to assist prospective bidders in evaluating the requirements for excavating and supporting the ground, to enable the Contractor to plan the work, to assist the A/E in reviewing the Contractor's submittals, and to establish a geotechnical baseline which will serve as the basis for identification of differing conditions. The format for the report is provided in Appendix C of the Federal Highway Administration (FHWA) Geotechnical Guideline No. 15. This guideline provides information on geotechnical aspects of differing site conditions, adequate site investigation, disclosure and presentation of subsurface information, and the use of such information in mitigating or resolving contractor claims of differing site conditions. The FHWA has also published ED-88-053 – Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications, October 1985, reprinted August 1988. The Geotechnical Report shall be included in the Project Manual to all prospective bidders.

Geotechnical investigations previously performed on some sites may be adequate, and additional test borings, as determined by a Geotechnical Engineer, may not be required.

HSMM will conduct soil boring tests at each site, and such additional borings as may be required by the Geotechnical Engineer, at an additional cost. HSMM will provide an appropriate geotechnical report for all sites requiring new shelters and physical additions of towers at no additional cost. These investigations and reports will be signed by Geotechnical Engineers who are registered in the Commonwealth of Virginia. Geotechnical investigations and reporting will be in accordance with the American Society for Testing and Materials, ASTM D 420, "Standard Guide to Site Characterization for Engineering Design and Construction Purposes" for new work. Geotechnical reports will be submitted to Commonwealth, for review and comment, and the building and tower manufacturers.

4.2 CONCEPTUAL PROJECT PLANNING AND ESTIMATING SERVICES

4.2.1 Design Workshop II and Space Needs Report (NOC Upgrade)

HSMM will compare space requirements and recommendations with design standards for equivalent spaces. HSMM will integrate equipment and system requirements into the program. Space needs will be developed or revised to meet space needs accordingly. Should it not be possible to establish firm equipment and system requirements at this point, HSMM will discuss design assumptions with the STARS Program Director. HSMM will produce a Space Needs Matrix for net and gross areas. HSMM will then develop Block Plans and Schematic Layouts of general functional areas based on the Program of Space Needs Matrix.

HSMM will present results and conduct a workshop with the STARS Team and the SI to finalize specific equipment interfaces and utility requirements for every room. In preparation for the meeting, HSMM will develop the agenda in conjunction with the STARS Program Director. The STARS Program Director will be provided with two copies of the drawings and other design documentation at the meeting. The primary purpose will be for the STARS Program Director to review the report and approve Program and Block Plans for integration and refinement into the Schematic Design. HSMM will document meeting results in minutes and provide to the STARS Program Director for distribution. Follow-up items will be managed through the action items list.

4.2.2 Design Workshop II and Space Needs Report (VSP Division 6 New Facility)

HSMM will review the STARS Team provided functional requirements. User space requirements and recommendations will be compared with design standards for equivalent spaces. HSMM will integrate equipment and system requirements into the

program. User space needs will be developed or revised to meet space needs accordingly. Should it not be possible to establish firm equipment and system requirements at this point, HSMM will discuss design assumptions with the STARS Program Director. HSMM will produce a Space Needs Matrix for net and gross areas. HSMM will then develop Block Plans and Schematic Layouts of general functional areas based on the Program of Space Needs Matrix.

HSMM will present results and conduct a workshop with the STARS Team and the SI to finalize specific equipment interfaces and utility requirements for every room. In preparation for the meeting, HSMM will develop the agenda in conjunction with the STARS Program Director. The STARS Program Director will be provided with two copies of the drawings and other design documentation at the meeting. The primary purpose will be for the STARS Program Director to review the report and approve Program and Block Plans for integration and refinement into the Schematic Design. HSMM will document meeting results in minutes and provide to the STARS Program Director for distribution. Follow-up items will be managed through the action items list.

4.3 PROJECT DESIGN SERVICES

4.3.1 Advanced Schematic Design and Preliminary Design (NOC Upgrade)

Upon receiving written approval of the Program and Block Plans, HSMM will prepare an advanced schematic submission including floor plans, sections, exterior elevations, narrative, calculations, mechanical system life cycle cost analysis for two systems, and cost estimate in accordance with the requirements of Section 807.0 of the CPSM dated July 2004 as modified by HSMM Summary of Conference dated 1 September 2004.

Life Cycle Cost Analysis for Office Airside AC System Selection: HSMM will prepare an energy conservation comparison (life cycle cost analysis) of two (2) air conditioning systems serving the Zone 1 Master Site office area in conjunction with an evaluation condenser-side heat recovery from the computer room air conditioning units serving the Master Site Equipment Room (MSER) and Network Operations Center (NOC) of the facility. An energy conservation analysis for the computer room type heating, ventilation, and air conditioning systems serving the MSER and NOC is not required by BCOM and will not be provided.

Upon approval of the advanced schematic design submission, HSMM will be directed to proceed to working drawing development. HSMM will not be developing a preliminary design submission for the NOC Upgrade.

4.3.2 Schematic and Preliminary Design (VSP Division 6 New Facility)

Upon receiving written approval of the Program and Block Plans, HSMM will prepare a schematic submission including floor plans, sections, exterior elevations, narrative, calculations, mechanical system life cycle cost analysis for two systems, fuel source evaluation, and cost estimate in accordance with the requirements of Section 806.0 of the CPSM dated July 2004.

Life Cycle Cost Analysis for Office Airside AC System Selection: HSMM will prepare an energy conservation comparison (life cycle cost analysis) of two (2) air conditioning systems serving the Division 6 new facility. This evaluation will also include an analysis to determine the appropriate fuel source for the new facility in accordance with Chapter 7 of the CPSM.

Upon receipt of State and BCOM comments and resolution of issues, HSMM will issue a Preliminary Drawing Submission for the Division 6 Communications Center incorporating agreed upon comments in accordance with Section 807.0 of the CPSM

HSMM will develop a civil and site-work narrative describing recommended geo-technical testing, utility availability and routing requirements, preliminary Storm-water Management Plan criteria and preliminary erosion control criteria.

Fire Sprinkler System Design: HSMM will provide a sprinkler system design, fire protection plans, and material and installation specifications including indications on the drawings of sprinkler piping routing/locations and sprinkler head locations in accordance with Chapters 7, 8, and 9 of the CPSM dated July 2004. HSMM will perform and submit to BCOM hydraulic calculations for the critical remote area in accordance with BCOM requirements. A performance specification requiring the Contractor to design the sprinkler system as part of the shop drawing/submittal process is no longer acceptable. This design will be updated in subsequent submittals in accordance with Chapters 8 and 9 of the CPSM.

4.4 COST ESTIMATES AND SCHEMATIC DESIGN SERVICES

4.4.1 Cost Estimate (NOC Upgrade)

HSMM will contract with a firm specializing independent cost estimating services to prepare an advanced schematic cost estimate as required by BCOM in accordance with

Chapter 8 and Appendix E of the CPSM. The estimate will be derived from HSMM drawings and building systems performance and quality standard design criteria in a narrative format for the NOC Upgrade. The advanced cost estimate will be included in the Advanced Schematic Design Submission for BCOM review and comment.

4.4.2 Cost Estimate (VSP Division 6 New Facility)

HSMM will contract with a firm specializing independent cost estimating services to prepare a preliminary cost estimate as required by BCOM in accordance with Chapter 8 and Appendix E of the CPSM. The estimate will be derived from HSMM drawings and building systems performance and quality standard design criteria in a narrative format for the Division 6 new facility. The preliminary cost estimate will be included in the Preliminary Design Submission for BCOM review and comment.

4.4.3 Advanced Schematic Design Presentation (NOC Upgrade)

HSMM will present results to the Commonwealth in Richmond at the Review Cycle Meeting for the Advanced Schematic Design (35% Level). In preparation for the meeting, the agenda will be discussed with the STARS Program Director and scheduled. HSMM will provide the STARS Program Director with two copies of the drawings and other design documentation at the meeting. The primary purpose will be for the STARS Program Director to review the report and approve schematics and criteria for integration into Solicitation Documents. HSMM will document meeting results in minutes and provide to the STARS Program Director for distribution. Follow-up items will be managed through the action items list.

4.4.4 Schematic Design Presentation (VSP Division 6 New Facility)

HSMM will present results to the Commonwealth in Richmond at the Review Cycle Meeting for the Schematic Design (35% Level). In preparation for the meeting, the agenda will be discussed with the STARS Program Director and scheduled. HSMM will provide the STARS Program Director with two copies of the drawings and other design documentation at the meeting. The primary purpose will be for the STARS Program Director to review the report and approve schematics and criteria for integration into Solicitation Documents. HSMM will document meeting results in minutes and provide to the STARS Program Director for distribution. Follow-up items will be managed through the action items list.

4.5 CONSTRUCTION DOCUMENTS AND BIDDING SERVICES

4.5.1 Working Construction Documents (NOC Upgrade)

Upon receiving written approval of the Advanced Schematic Design Submission, HSMM will provide and submit to Virginia State Police (VSP) and the Bureau of Capital Outlay Management (BCOM) for review, comment, and approval the Working Drawing Submission in accordance with Section 808.0 of the CPSM. Upon receipt of VSP and BCOM comments and resolution of issues, HSMM will issue a Revised Working Drawing Submission incorporating agreed upon comments. HSMM will produce Bid Documents, including drawings and specifications, upon receipt in writing from the STARS Program Director that approval for project advertisement has been granted by BCOM in accordance with Section 809.4 of the CPSM. HSMM requires written approval of each submittal within five days of shipment. Final construction documents will be complete and ready for bidding on or before February 18, 2005.

4.5.2 Construction Documents (VSP Division 6 New Facility)

Upon receiving written approval of the Preliminary Design Submission, HSMM will provide and submit to VSP and BCOM for review, comment, and approval the Working Drawing Submission in accordance with Section 808.0 of the CPSM. Upon receipt of VSP and BCOM comments and resolution of issues, HSMM will issue a Revised Working Drawing Submission incorporating agreed upon comments. HSMM will produce Bid Documents, including drawings and specifications, upon receipt in writing from the STARS Program Director that approval for project advertisement has been granted by BCOM in accordance with Section 809.4 of the CPSM. HSMM requires written approval of each submittal within ten days of shipment. Final construction documents will be complete and ready for bidding no later than November 1, 2006.

4.6 CONSTRUCTION ADMINISTRATION SERVICES

4.6.1 Construction Administration - including shop drawings, planning, scheduling of all work and inspection services (NOC Upgrade)

HSMM will conduct monthly Partnering Meetings with the STARS Program Director, the Construction Contractor and the SI. HSMM anticipates up to six meetings over the course of construction. HSMM will also conduct monthly site visits from their Discipline Engineers in conjunction with the meetings. The HSMM Communications Technical Staff will also monitor general compliance with design documents and coordination of

equipment requirements as required. Should construction extend beyond six months, HSMM will present an extension to this scope to accommodate the new schedule.

4.6.2 Construction Administration - including shop drawings, planning, scheduling of all work and inspection services (VSP Division 6 New Facility)

HSMM will provide an onsite representative, three days per week, to execute the construction administrative services as defined in Chapter 10 of the Construction and Professional Services Manual, October 1, 2004 including conducting monthly Partnering Meetings with the STARS Program Director, the Construction Contractor and SI Contractor to discuss status of the Division 6 construction activities. We anticipate these on-site "clerk of the works" services to continue for a period of fifteen (15) months over the course of bidding, construction, and project closeout.

4.7 QUALITY ASSURANCE

4.7.1 Final Inspections (NOC Upgrade)

During the final inspection, HSMM will prepare a Punch List. The Construction Contractor will provide a written response to Punch List, which will be reviewed by HSMM discipline engineers. Upon completion of the Punch List items, the Construction Contractor will request a Substantial Completion Inspection. HSMM discipline engineers will conduct an inspection at the facility in Richmond for issuing a Certificate of Substantial Completion. Should the facility not be prepared for the inspection, the Construction Contractor will be contractually obligated to pay for re-inspection.

4.7.2 Inspection (VSP Division 6 New Facility)

During each inspection, HSMM will prepare a Punch List. The Construction Contractor is expected to provide a written response to Punch List, which will be reviewed by HSMM discipline engineers. Upon completion of the Punch List items, the Construction Contractor will request a Substantial Completion Inspection. HSMM discipline engineers will conduct a final inspection at the facility in Division 6 for issuing a Certificate of Substantial Completion. Should the facility not be prepared for the inspection, the Construction Contractor will be contractually obligated to pay for re-inspection.

4.8 VERIFY AS-BUILT DRAWINGS SERVICES

4.8.1 Verify As-built Drawings (NOC)

HSMM will review as-built documentation provided to determine adequacy and applicability. HSMM does not warrant the accuracy of the information contained in the documentation as provided by the Construction Contractor. HSMM will provide recommended improvements in a letter report to the STARS Program Director, and then will review revised documentation. After the second review, HSMM will recommend document improvements to the STARS Program Director.

4.8.2 Verify As-built Drawings (VSP Division 6 New Facility)

HSMM will review as-built documentation provided to determine adequacy and applicability. HSMM does not warrant the accuracy of the information contained in the documentation as provided by the Construction Contractor. HSMM will provide recommended improvements in a letter report to the STARS Program Director, and then will review revised documentation. After the second review, HSMM will recommend document improvements to the STARS Program Director.

4.9 INVOICES AND PAYMENT RECOMMENDATION SERVICES

4.9.1 Invoices and Payment Recommendation (NOC)

HSMM will review Construction Contractor invoices, relating to the NOC, and recommend payments and assist the STARS PCO in incorporating into the Master Budget.

4.9.2 Invoices and Payment Recommendation (VSP Division 6 New Facility)

HSMM will review Construction Contractor invoices, relating to the Division 6 New Facility, and recommend payments and assist the STARS PCO in incorporating into the Master Budget.

4.10 RISK ASSESSMENT AND MITIGATION STRATEGIES

4.10.1 Risk Assessment and Mitigation Strategies (NOC)

HSMM will evaluate potential risks that might impact the NOC project and the program as a whole. Where appropriate, HSMM will identify mitigation processes. The purpose is to track the potential risks so that project and program decisions may be made with due considerations to these risks.

4.10.2 Risk Assessment and Mitigation Strategies (VSP Division 6 New Facility)

HSMM will evaluate potential risks that might impact the Division 6 project and the program as a whole. Where appropriate, HSMM will identify mitigation processes. The purpose is to track the potential risks so that project and program decisions may be made with due considerations to these risks.

4.11 MONTHLY STATUS REPORTS

HSMM will prepare and submit monthly status reports to the STARS Program Director and the STARS Procurement and Contracting Officer listing work done during the previous period, scheduled items for the next period, and critical action items.