

<b>SOLICITATION, OFFER AND AWARD</b>			1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING	PAGE OF PAGES 1   57	
2. CONTRACT NO.		3. SOLICITATION NO. M67854-12-R-8007		4. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)		5. DATE ISSUED 10 Nov 2011	
6. REQUISITION/PURCHASE NO.		7. ISSUED BY PM TRASY PROGRAM MANAGER, TRAINING SYSTEMS 12350 RESEARCH PARKWAY ORLANDO FL 32826-3275 CODE M67854		8. ADDRESS OFFER TO (If other than Item 7) <b>See Item 7</b>		CODE	
TEL:		FAX:		TEL:		FAX:	
NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".							
<b>SOLICITATION</b>							
9. Sealed offers in original and _____ copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in _____ until _____ local time _____ (Hour) (Date)							
CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.							
10. FOR INFORMATION CALL:		A. NAME		B. TELEPHONE (Include area code) (NO COLLECT CALLS)		C. E-MAIL ADDRESS	
<b>11. TABLE OF CONTENTS</b>							
(X)	SEC.	DESCRIPTION		PAGE(S)	(X)	SEC.	DESCRIPTION
<b>PART I - THE SCHEDULE</b>				<b>PART II - CONTRACT CLAUSES</b>			
X	A	SOLICITATION/ CONTRACT FORM		1	X	I	CONTRACT CLAUSES
X	B	SUPPLIES OR SERVICES AND PRICES/ COSTS		2 - 8	<b>PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS</b>		
X	C	DESCRIPTION/ SPECS./ WORK STATEMENT		9	J	LIST OF ATTACHMENTS	
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X	F	DELIVERIES OR PERFORMANCE		12			
	G	CONTRACT ADMINISTRATION DATA			X	L	INSTRS., CONDS., AND NOTICES TO OFFERORS
X	H	SPECIAL CONTRACT REQUIREMENTS		13 - 14	X	M	EVALUATION FACTORS FOR AWARD
<b>OFFER (Must be fully completed by offeror)</b>							
NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.							
12. In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.							
13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52.232-8)							
14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated):				AMENDMENT NO.		DATE	
15A. NAME AND ADDRESS OF OFFEROR		CODE		FACILITY		16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)	
15B. TELEPHONE NO (Include area code)		15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE. <input type="checkbox"/>				17. SIGNATURE	
						18. OFFER DATE	
<b>AWARD (To be completed by Government)</b>							
19. ACCEPTED AS TO ITEMS NUMBERED			20. AMOUNT			21. ACCOUNTING AND APPROPRIATION	
22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304(c)( ) <input type="checkbox"/> 41 U.S.C. 253(c)( )				23. SUBMIT INVOICES TO ADDRESS SHOWN IN ITEM (4 copies unless otherwise specified)			
24. ADMINISTERED BY (If other than Item 7) CODE				25. PAYMENT WILL BE MADE BY CODE			
26. NAME OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:				27. UNITED STATES OF AMERICA (Signature of Contracting Officer)		28. AWARD DATE	

**IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.**

## Section B - Supplies or Services and Prices

DEVELOPMENT SUPPORT POSITIONS**DEVELOPMENT SUPPORT POSITIONS**

THESE POSITIONS ARE FIRM FIXED PRICED BASED ON HOURLY RATE. THE REQUIRED HOURS ARE BASED ON INDIVIDUAL TASK ORDERS AND THE STATEMENT OF WORK. NO ADDITIONAL LABOR CATEGORY POSITIONS AUTHORIZED.

<b><u>POSITION</u></b>	<b><u>HOURLY RATE</u></b>
PROGRAM MANAGER	
SOFTWARE SYSTEMS ARCHITECT	
SYSTEMS ENGINEER	
SENIOR SOFTWARE ENGINEER	
SOFTWARE ENGINEER	
TEST ENGINEER	
INFORMATION SYSTEMS SECURITY MANAGER	
LOGISTICIAN	
TECHNICAL WRITER	
SUBJECT MATTER EXPERT	

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	Mobilization FFP Mobilization Period FOB: Destination SHIP VIA: Best Way ( Shippers Option)	1	Lot		

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NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0100	PDSS SUPPORT FFP IN ACCORDANCE WITH STATEMENT OF WORK (SOW) AND CONTRACTOR DATA REQUIREMENTS LIST (CDRL). PDSS SHALL INCLUDE ALL PROGRAM MANAGEMENT COST (TO INCLUDE THE T&M EFFORTS FOR DEVELOPMENT SUPPORT). FOB: Destination SHIP VIA: Best Way ( Shippers Option)	12	Months		

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NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0101	TRAVEL COST		Lot		
	<p>THIS INCLUDES BOTH PDSS AND DEVELOPMENT SUPPORT TRAVEL. THE CONTRACTOR WILL INVOICE GOVERNMENT PROGRESSIVELY AND AT COST USING THE APPROPRIATE LOCATION PER DIEM RATES AND IN ACCORDANCE WITH JOINT TRAVEL REGULATIONS. ALLOWABLE COST PER TRAVEL REGULATIONS IS UTILIZATION OF COMPACT RENTAL CAR, TRAVEL COST, LODGING, MEALS AND INCIDENTALS. NO OTHER COST ALLOWABLE. PER DIEM RATE FOR LOCALE IS LODGING \$XXX PLUS M&amp;IE \$XXX. FIRST AND LAST DAY ARE 75% OF M&amp;IE. COST BREAKDOWN IS ACTUAL ALLOWED COST PLUS RESPECTIVE G&amp;A.</p> <p>FOB: Destination</p> <p>SHIP VIA: Best Way ( Shippers Option)</p>				

ESTIMATED COST

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0102 OPTION	DEVELOPMENT SUPPORT T&M		Lot		
	<p>EACH POSITION IS FFP BASED ON AN HOURLY RATE. THE AMOUNT OF SUPPORT REQUIRED IS BASED ON INDIVIDUAL TASK ORDERS AND THE SOW. THE POSTIONS ARE TASK ORDER MANAGER, SOFTWARE SYSTEMS ARCHITECT, SENIOR SOFTWARE ENGINEER, SOFTWARE ENGINEER, SYSTEMS ENGINEER, NETWORK ENGINEER, INFORMATION SYSTEMS SECURITY MANAGER, TEST ENGINEER, LOGISTICIAN, TECHINICAL WRITER, SYSTEM ADMINISTRATOR, AND SUBJECT MATTER EXPERT (SME).</p> <p>FOB: Destination</p> <p>SHIP VIA: Best Way ( Shippers Option)</p>				

TOT ESTIMATED PRICE

CEILING PRICE

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0200 OPTION	PDSS SUPPORT (1) FFP IN ACCORDANCE WITH STATEMENT OF WORK (SOW) AND CONTRACTOR DATA REQUIREMENTS LIST (CDRL). PDSS SHALL INCLUDE ALL PROGRAM MANAGEMENT COST (TO INCLUDE THE T&M EFFORTS FOR DEVELOPMENT SUPPORT). FOB: Destination SHIP VIA: Best Way ( Shippers Option)	12	Months		

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NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0201 OPTION	TRAVEL (1) COST THIS INCLUDES BOTH PDSS AND DEVELOPMENT SUPPORT TRAVEL. THE CONTRACTOR WILL INVOICE GOVERNMENT PROGRESSIVELY AND AT COST USING THE APPROPRIATE LOCATION PER DIEM RATES AND IN ACCORDANCE WITH JOINT TRAVEL REGULATIONS. ALLOWABLE COST PER TRAVEL REGULATIONS IS UTILIZATION OF COMPACT RENTAL CAR, TRAVEL COST, LODGING, MEALS AND INCIDENTALS. NO OTHER COST ALLOWABLE. PER DIEM RATE FOR LOCALE IS LODGING \$XXX PLUS M&IE \$XXX. FIRST AND LAST DAY ARE 75% OF M&IE. COST BREAKDOWN IS ACTUAL ALLOWED COST PLUS RESPECTIVE G&A. FOB: Destination SHIP VIA: Best Way ( Shippers Option)		Lot		

ESTIMATED COST

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0202			Lot		
OPTION	DEVELOPMENT SUPPORT (1)				
	T&M				
	EACH POSITION IS FFP BASED ON AN HOURLY RATE. THE AMOUNT OF SUPPORT REQUIRED IS BASED ON INDIVIDUAL TASK ORDERS AND THE SOW. THE POSTIONS ARE TASK ORDER MANAGER, SOFTWARE SYSTEMS ARCHITECT, SENIOR SOFTWARE ENGINEER, SOFTWARE ENGINEER, SYSTEMS ENGINEER, NETWORK ENGINEER, INFORMATION SYSTEMS SECURITY MANAGER, TEST ENGINEER, LOGISTICIAN, TECHINICAL WRITER, SYSTEM ADMINISTRATOR, AND SUBJECT MATTER EXPERT (SME).				
	FOB: Destination				
	SHIP VIA: Best Way ( Shippers Option)				

TOT ESTIMATED PRICE  
CEILING PRICE

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0300		12	Months		
OPTION	PDSS SUPPORT (2)				
	FFP				
	IN ACCORDANCE WITH STATEMENT OF WORK (SOW) AND CONTRACTOR DATA REQUIREMENTS LIST (CDRL). PDSS SHALL INCLUDE ALL PROGRAM MANAGEMENT COST (TO INCLUDE THE T&M EFFORTS FOR DEVELOPMENT SUPPORT).				
	FOB: Destination				
	SHIP VIA: Best Way ( Shippers Option)				

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NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0301	TRAVEL (2)		Lot		

COST

THIS INCLUDES BOTH PDSS AND DEVELOPMENT SUPPORT TRAVEL. THE CONTRACTOR WILL INVOICE GOVERNMENT PROGRESSIVELY AND AT COST USING THE APPROPRIATE LOCATION PER DIEM RATES AND IN ACCORDANCE WITH JOINT TRAVEL REGULATIONS.

ALLOWABLE COST PER TRAVEL REGULATIONS IS UTILIZATION OF COMPACT RENTAL CAR, TRAVEL COST, LODGING, MEALS AND INCIDENTALS. NO OTHER COST ALLOWABLE. PER DIEM RATE FOR LOCALE IS LODGING \$XXX PLUS M&IE \$XXX. FIRST AND LAST DAY ARE 75% OF M&IE. COST BREAKDOWN IS ACTUAL ALLOWED COST PLUS RESPECTIVE G&A.

FOB: Destination

SHIP VIA: Best Way ( Shippers Option)

ESTIMATED COST

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0302	DEVELOPMENT SUPPORT (2)		Lot		

T&M

EACH POSITION IS FFP BASED ON AN HOURLY RATE. THE AMOUNT OF SUPPORT REQUIRED IS BASED ON INDIVIDUAL TASK ORDERS AND THE SOW. THE POSTIONS ARE TASK ORDER MANAGER, SOFTWARE SYSTEMS ARCHITECT, SENIOR SOFTWARE ENGINEER, SOFTWARE ENGINEER, SYSTEMS ENGINEER, NETWORK ENGINEER, INFORMATION SYSTEMS SECURITY MANAGER, TEST ENGINEER, LOGISTICIAN, TECHINICAL WRITER, SYSTEM ADMINISTRATOR, AND SUBJECT MATTER EXPERT (SME).

FOB: Destination

SHIP VIA: Best Way ( Shippers Option)

TOT ESTIMATED PRICE

CEILING PRICE

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0400	CDRLs FFP NOT SEPERATELY PRICED (NSP). FOB: Destination SHIP VIA: Best Way ( Shippers Option)	1	Lot		

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NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0500	OVER AND ABOVE FFP NTE \$100,000 FOB: Destination SHIP VIA: Best Way ( Shippers Option)				

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NET AMT

Section C - Descriptions and Specifications

DESCRIPTIONS AND SPECIFICATION

**C.1 DESCRIPTION/SPECIFICATION/WORK STATEMENT**

The Contractor shall furnish the necessary supplies, services, facilities and materials required to perform the work described here and in the attached Statement of Work and associated DD Forms 1423 Contract Data Requirements List(s).

**C.2 INCORPORATION OF THE CONTRACTOR'S TECHNICAL PROPOSAL**

(a) The Contractor's Technical Proposal, and any amendments/addenda thereof, is incorporated herein by reference, unless otherwise specified, with the same force and effect as if set forth in full text. Nothing in the Contractor's proposal shall constitute a waiver of any of the provisions of the contract, including the Statement(s) of Work and Specifications.

(b) For purposes of FAR Clause 52.215-8, Order of Precedence—Uniform Contract Format, the Contractor's technical proposal shall be considered a "Specification."

## Section D - Packaging and Marking

### **D.1 PREPARATION FOR DELIVERY**

All deliverables under this contract shall be prepared, packaged, and marked in accordance with best commercial practices to ensure safe delivery at the destination.

Classified reports, data, and documentation, if applicable, shall be prepared for shipment in accordance with National Industrial Security Program Operating Manual (NISPOM) DOD 5220.22-M dated January 1995.

### **D.2 TECHNICAL DATA**

Contracts Data Requirements Lists (CDRLs) shall be packaged, packed, and marked in accordance with the applicable DD Form 1423 attached hereto.

### **D.3 PACKAGING AND MARKING**

The Contractor will preserve, package and mark all shipments in accordance with ASTM (American Society of Testing and Materials) D3951-95, "Standard Practice for Commercial Packaging."

### **D.4 TECHNICAL DATA PACKAGE INSTRUCTIONS**

Technical Data and Information will be packaged for domestic shipment in accordance with best commercial practices to assure arrival at the destinations in an undamaged condition. The package or envelope should be clearly marked with any special markings specified in this contract, such as contract number, ELIN, device number, and document title must be on the outside of the package.

### **D.5 PACKAGING & MARKING OF REPORTS**

- a. All unclassified data shall be prepared for shipment in accordance with best commercial practice. Classified reports, data and documentation, if any, shall be prepared for shipment in accordance with the National Industry Security Program Operating Manual, DOD 5220.22-M.
- b. The contractor shall promptly display on the cover of each report the following information:
  1. Name and business address of contractor.
  2. Contract Number/Delivery/Task order number.
  3. Contract/Delivery/Task order dollar amount.
  4. Whether the contract was competitively or non-competitively awarded;
  5. Name, code and activity of sponsoring individual.

## Section E - Inspection and Acceptance

## INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	Destination	Government	Destination	Government
0100	Destination	Government	Destination	Government
0101	Destination	Government	Destination	Government
0102	Destination	Government	Destination	Government
0200	Destination	Government	Destination	Government
0201	Destination	Government	Destination	Government
0202	Destination	Government	Destination	Government
0300	Destination	Government	Destination	Government
0301	Destination	Government	Destination	Government
0302	Destination	Government	Destination	Government
0400	Destination	Government	Destination	Government
0500	Destination	Government	Destination	Government

## Section F - Deliveries or Performance

## DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	POP 01-APR-2013 TO 30-APR-2013	N/A	N/A FOB: Destination	
0100	POP 01-MAY-2012 TO 30-APR-2013	N/A	N/A FOB: Destination	
0101	POP 01-MAY-2012 TO 30-APR-2013	N/A	N/A FOB: Destination	
0102	POP 01-MAY-2012 TO 30-APR-2013	N/A	N/A FOB: Destination	
0200	POP 01-MAY-2013 TO 30-APR-2014	N/A	N/A FOB: Destination	
0201	POP 01-MAY-2013 TO 30-APR-2014	N/A	N/A FOB: Destination	
0202	POP 01-MAY-2013 TO 30-APR-2014	N/A	N/A FOB: Destination	
0300	POP 01-MAY-2014 TO 30-APR-2015	N/A	N/A FOB: Destination	
0301	POP 01-MAY-2014 TO 30-APR-2015	N/A	N/A FOB: Destination	
0302	POP 01-MAY-2014 TO 30-APR-2015	N/A	N/A FOB: Destination	
0400	POP 01-MAY-2012 TO 30-APR-2015	N/A	N/A FOB: Destination	
0500	POP 01-MAY-2012 TO 30-APR-2015	N/A	N/A FOB: Destination	

## Section H - Special Contract Requirements

### SPECIAL CONTRACT REQUIREMENTS

#### **H.1 LIABILITY INSURANCE (MAR 1999)**

The following types of insurance are required in accordance with the clause entitled, "FAR 52.228-5, "Insurance--Work on a Government Installation" and will be maintained in the minimum amounts shown:

Comprehensive General Liability: \$500,000 per accident for bodily injury.

Automobile Insurance: \$200,000 per person and \$500,000 per accident for bodily injury and \$20,000 per accident for property damage.

Standard Workman's Compensation and Employer's Liability Insurance (or, where maritime employment is involved, Longshoremen's and Harbor Worker's Compensation Insurance) in the minimum amount of \$100,000.

Aircraft public and passenger liability: \$ N/A per person and \$N/A per occurrence for bodily injury, other than passenger liability; \$N/A per occurrence for property damage. Passenger bodily injury liability limits of \$N/A per passenger, multiplied by the number of seats or number of passengers, whichever is greater.

#### **H.2 DISCLOSURE, USE AND PROTECTION OF PROPRIETARY INFORMATION (OCT 1994) (5252.227-9511)**

During the performance of this contract, the Government may use an independent services contractor (ISC), who is neither an agent nor employee of the Government. The ISC may be used to conduct reviews, evaluations, or independent verification and validations (IVVs) of technical documents submitted to the Government during performance.

The use of an ISC is solely for the convenience of the Government. The ISC has no obligation to the prime contractor. The prime contractor is required to provide full cooperation, working facilities and access to the ISC for the purposes stated in paragraph (a) above.

Since the ISC is neither an employee nor agent of the Government, any findings, recommendations, analyses, or conclusion of such a contractor are not those of the Government.

The prime contractor acknowledges that the Government has the right to use ISCs as stated in paragraph (a) above. It is possible that under such an arrangement the ISC may require access to or the use of information (other than restricted cost or pricing data), which is proprietary to the prime contractor.

To protect any such proprietary information from disclosure or use, and to establish the respective rights and duties of both the ISC and prime contractor, the prime contractor agrees to enter into a direct agreement with any ISC as the Government requires. A properly executed copy (per FAR 9.505-4) of the agreement will be provided to the Procuring Contracting Officer (PCO).

#### **H.3 ACCESS TO GOVERNMENT PROPERTY AND FACILITIES**

Work to be performed under this contract shall be performed at facilities operated by the Government. The contractor, therefore, will be granted ingress and egress at the specific site where effort is to be performed. Access to a site shall be coordinated with the ACOR.

While contractor personnel are at a site, they are required to comply with all rules and regulations of the site, particularly in the areas of health and safety. The facilities to which the contractor has access at all times will be in

the custody of the Federal Government and will not be considered "Government Property" furnished to the contractor.

The Government reserves the right to issue DoD identification badges to contractor employees. If DoD badges are required, they will be issued in accordance with DoD procedures.

If it is brought to the attention of the Government that any contractor or subcontractor employee working on this contract does not meet the minimal work requirements as defined in the task (s), the contractor will be advised in writing by the Contracting Officer and access to DoD facilities may be denied or withdrawn for that employee.

The contractor shall be responsible for returning, or ensuring that employees return, all DoD-issued contractor/employee identification, all other DoD property, and any security access cards to Government offices issued by a landlord of commercial space. The Contractor shall meet all local (site) check out and security procedures.

#### **H.4 RELEASE OF NEWS INFORMATION**

No news release (including photographs and films, public announcements, denial or confirmation of same) on any part of the subject matter of this contract or any phase of any program hereunder shall be made without the prior written approval of the Contracting Officer and MARCORSYSCOM Public Affairs Office (PAO), and if Congressionally-related, MARCORSYSCOM Congressional Affairs (CA). See also Section I, DFARS clause 252.204-7000 "Disclosure of Information" and Item 12 of the DD Form 254 (if applicable).

#### **H.5 RESTRICTIONS**

The Contractor shall adhere to the Office of the Secretary of Defense policy on discussion, publication, or presentations regarding IEDs and IED-Defeat efforts in open sources dated 24 Apr 06. All data and reports generated from this effort are for Official Use Only. Publication is strictly prohibited without approval of the PMSTRASYS Contracting Officer. The Contractor shall remain cognizant at all times regarding the sensitive nature of having open discussions, emails, and phone conversations about IED related topics.

## Section I - Contract Clauses

## CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	JUL 2004
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions On Subcontractor Sales To The Government	SEP 2006
52.203-7	Anti-Kickback Procedures	OCT 2010
52.203-11	Certification And Disclosure Regarding Payments To Influence Certain Federal Transactions	SEP 2007
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	OCT 2010
52.203-13	Contractor Code of Business Ethics and Conduct	APR 2010
52.204-2	Security Requirements	AUG 1996
52.204-4	Printed or Copied Double-Sided on Postconsumer Fiber Content Paper	MAY 2011
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	DEC 2010
52.212-4	Contract Terms and Conditions--Commercial Items	JUN 2010
52.215-2	Audit and Records--Negotiation	OCT 2010
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-11	Price Reduction for Defective Certified Cost or Pricing Data-- Modifications	AUG 2011
52.215-13	Subcontractor Certified Cost or Pricing Data--Modifications	OCT 2010
52.215-14	Integrity of Unit Prices	OCT 2010
52.215-15	Pension Adjustments and Asset Reversions	OCT 2010
52.215-16	Facilities Capital Cost of Money	JUN 2003
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions	JUL 2005
52.216-7	Allowable Cost And Payment	JUN 2011
52.216-8	Fixed Fee	JUN 2011
52.216-19	Order Limitations	OCT 1995
52.216-21	Requirements	OCT 1995
52.216-24	Limitation Of Government Liability	APR 1984
52.216-25	Contract Definitization	OCT 2010
52.216-29	Time-and-Materials/Labor-Hour Proposal Requirements-- Non-Commercial Item Acquisition With Adequate Price Competition	FEB 2007
52.217-9	Option To Extend The Term Of The Contract	MAR 2000
52.222-3	Convict Labor	JUN 2003
52.222-19	Child Labor -- Cooperation with Authorities and Remedies	JUL 2010
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	MAR 2007
52.222-35	Equal Opportunity for Veterans	SEP 2010
52.222-36	Affirmative Action For Workers With Disabilities	OCT 2010
52.222-37	Employment Reports on Veterans	SEP 2010
52.222-50	Combating Trafficking in Persons	FEB 2009
52.223-6	Drug-Free Workplace	MAY 2001
52.223-10	Waste Reduction Program	MAY 2011
52.225-1	Buy American Act--Supplies	FEB 2009
52.225-3	Buy American Act--Free Trade Agreement--Israeli Trade Act	JUN 2009
52.225-5	Trade Agreements	AUG 2009

52.225-8	Duty-Free Entry	OCT 2010
52.225-13	Restrictions on Certain Foreign Purchases	JUN 2008
52.226-1	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises	JUN 2000
52.227-1	Authorization and Consent	DEC 2007
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	DEC 2007
52.227-3	Patent Indemnity	APR 1984
52.227-9	Refund Of Royalties	APR 1984
52.227-10	Filing Of Patent Applications--Classified Subject Matter	DEC 2007
52.227-14	Rights in Data--General	DEC 2007
52.228-3	Worker's Compensation Insurance (Defense Base Act)	APR 1984
52.228-5	Insurance - Work On A Government Installation	JAN 1997
52.228-7	Insurance--Liability To Third Persons	MAR 1996
52.230-6	Administration of Cost Accounting Standards	JUN 2010
52.232-7	Payments Under Time-And-Materials And Labor Hour Contracts	FEB 2007
52.232-8	Discounts For Prompt Payment	FEB 2002
52.232-9	Limitation On Withholding Of Payments	APR 1984
52.232-11	Extras	APR 1984
52.232-17	Interest	OCT 2010
52.232-18	Availability Of Funds	APR 1984
52.232-20	Limitation Of Cost	APR 1984
52.232-22	Limitation Of Funds	APR 1984
52.232-23	Assignment Of Claims	JAN 1986
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	OCT 2003
52.232-34	Payment By Electronic Funds Transfer--Other Than Central Contractor Registration	MAY 1999
52.233-3	Protest After Award	AUG 1996
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004
52.237-2	Protection Of Government Buildings, Equipment, And Vegetation	APR 1984
52.237-3	Continuity Of Services	JAN 1991
52.237-8	Restriction on Severance Payments to Foreign Nationals	AUG 2003
52.239-1	Privacy or Security Safeguards	AUG 1996
52.242-13	Bankruptcy	JUL 1995
52.243-1	Changes--Fixed Price	AUG 1987
52.243-2	Changes--Cost-Reimbursement	AUG 1987
52.244-2	Subcontracts	OCT 2010
52.244-5	Competition In Subcontracting	DEC 1996
52.244-6	Subcontracts for Commercial Items	DEC 2010
52.245-1	Government Property	AUG 2010
52.245-2	Government Property Installation Operation Services	AUG 2010
52.245-9	Use And Charges	AUG 2010
52.246-2	Inspection Of Supplies--Fixed Price	AUG 1996
52.246-3	Inspection Of Supplies Cost-Reimbursement	MAY 2001
52.246-4	Inspection Of Services--Fixed Price	AUG 1996
52.246-16	Responsibility For Supplies	APR 1984
52.246-23	Limitation Of Liability	FEB 1997
52.246-25	Limitation Of Liability--Services	FEB 1997
52.249-2	Termination For Convenience Of The Government (Fixed-Price)	MAY 2004
52.249-8	Default (Fixed-Price Supply & Service)	APR 1984
52.251-1	Government Supply Sources	AUG 2010

52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense- Contract-Related Felonies	DEC 2008
252.203-7002	Requirement to Inform Employees of Whistleblower Rights	JAN 2009
252.204-7000	Disclosure Of Information	DEC 1991
252.204-7002	Payment For Subline Items Not Separately Priced	DEC 1991
252.204-7008	Export-Controlled Items	APR 2010
252.205-7000	Provision Of Information To Cooperative Agreement Holders	DEC 1991
252.215-7000	Pricing Adjustments	DEC 1991
252.215-7002	Cost Estimating System Requirements	MAY 2011
252.217-7028	Over And Above Work	DEC 1991
252.219-7003	Small Business Subcontracting Plan (DOD Contracts)	SEP 2011
252.222-7002	Compliance With Local Labor Laws (Overseas)	JUN 1997
252.223-7001	Hazard Warning Labels	DEC 1991
252.223-7004	Drug Free Work Force	SEP 1988
252.223-7006	Prohibition On Storage And Disposal Of Toxic And Hazardous Materials	APR 1993
252.225-7012	Preference For Certain Domestic Commodities	JUN 2010
252.225-7027	Restrictions on Contingent Fees for Foreign Military Sales	APR 2003
252.225-7028	Exclusionary Policies And Practices Of Foreign Government	APR 2003
252.225-7031	Secondary Arab Boycott Of Israel	JUN 2005
252.227-7013	Rights in Technical Data--Noncommercial Items	SEP 2011
252.227-7014	Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation	MAR 2011
252.227-7016	Rights in Bid or Proposal Information	JAN 2011
252.227-7019	Validation of Asserted Restrictions--Computer Software	SEP 2011
252.227-7025	Limitations on the Use or Disclosure of Government- Furnished Information Marked with Restrictive Legends	MAR 2011
252.227-7027	Deferred Ordering Of Technical Data Or Computer Software	APR 1988
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7037	Validation of Restrictive Markings on Technical Data	SEP 2011
252.231-7000	Supplemental Cost Principles	DEC 1991
252.232-7003	Electronic Submission of Payment Requests and Receiving Reports	MAR 2008
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.245-7001	Tagging, Labeling, and Marking of Government-Furnished Property	FEB 2011
252.246-7000	Material Inspection And Receiving Report	MAR 2008
252.247-7023	Transportation of Supplies by Sea	MAY 2002

#### CLAUSES INCORPORATED BY FULL TEXT

##### 52.217-7 OPTION FOR INCREASED QUANTITY--SEPARATELY PRICED LINE ITEM (MAR 1989)

The Government may require the delivery of the numbered line item, identified in the Schedule as an option item, in the quantity and at the price stated in the Schedule. The Contracting Officer may exercise the option by written notice to the Contractor within \_\_\_\_\_. Delivery of added items shall continue at the same rate that like items are called for under the contract, unless the parties otherwise agree.

(End of clause)

52.222-50 COMBATING TRAFFICKING IN PERSONS (FEB 2009)

(a) Definitions. As used in this clause--

Coercion means--

- (1) Threats of serious harm to or physical restraint against any person;
- (2) Any scheme, plan, or pattern intended to cause a person to believe that failure to perform an act would result in serious harm to or physical restraint against any person; or
- (3) The abuse or threatened abuse of the legal process.

Commercial sex act means any sex act on account of which anything of value is given to or received by any person.

Debt bondage means the status or condition of a debtor arising from a pledge by the debtor of his or her personal services or of those of a person under his or her control as a security for debt, if the value of those services as reasonably assessed is not applied toward the liquidation of the debt or the length and nature of those services are not respectively limited and defined.

Employee means an employee of the Contractor directly engaged in the performance of work under the contract who has other than a minimal impact or involvement in contract performance.

Forced Labor means knowingly providing or obtaining the labor or services of a person--

- (1) By threats of serious harm to, or physical restraint against, that person or another person;
- (2) By means of any scheme, plan, or pattern intended to cause the person to believe that, if the person did not perform such labor or services, that person or another person would suffer serious harm or physical restraint; or
- (3) By means of the abuse or threatened abuse of law or the legal process.

Involuntary servitude includes a condition of servitude induced by means of--

- (1) Any scheme, plan, or pattern intended to cause a person to believe that, if the person did not enter into or continue in such conditions, that person or another person would suffer serious harm or physical restraint; or
- (2) The abuse or threatened abuse of the legal process.

Severe forms of trafficking in persons means--

- (1) Sex trafficking in which a commercial sex act is induced by force, fraud, or coercion, or in which the person induced to perform such act has not attained 18 years of age; or
- (2) The recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.

Sex trafficking means the recruitment, harboring, transportation, provision, or obtaining of a person for the purpose of a commercial sex act.

(b) Policy. The United States Government has adopted a zero tolerance policy regarding trafficking in persons. Contractors and contractor employees shall not--

- (1) Engage in severe forms of trafficking in persons during the period of performance of the contract;
  - (2) Procure commercial sex acts during the period of performance of the contract; or
  - (3) Use forced labor in the performance of the contract.
- (c) Contractor requirements. The Contractor shall--
- (1) Notify its employees of--
    - (i) The United States Government's zero tolerance policy described in paragraph (b) of this clause; and
    - (ii) The actions that will be taken against employees for violations of this policy. Such actions may include, but are not limited to, removal from the contract, reduction in benefits, or termination of employment; and
  - (2) Take appropriate action, up to and including termination, against employees or subcontractors that violate the policy in paragraph (b) of this clause.
  - (d) Notification. The Contractor shall inform the Contracting Officer immediately of--
    - (1) Any information it receives from any source (including host country law enforcement) that alleges a Contractor employee, subcontractor, or subcontractor employee has engaged in conduct that violates this policy; and
    - (2) Any actions taken against Contractor employees, subcontractors, or subcontractor employees pursuant to this clause.
  - (e) Remedies. In addition to other remedies available to the Government, the Contractor's failure to comply with the requirements of paragraphs (c), (d), or (f) of this clause may result in --
    - (1) Requiring the Contractor to remove a Contractor employee or employees from the performance of the contract;
    - (2) Requiring the Contractor to terminate a subcontract;
    - (3) Suspension of contract payments;
    - (4) Loss of award fee, consistent with the award fee plan, for the performance period in which the Government determined Contractor non-compliance;
    - (5) Termination of the contract for default or cause, in accordance with the termination clause of this contract; or
    - (6) Suspension or debarment.
  - (f) Subcontracts. The Contractor shall include the substance of this clause, including this paragraph (f), in all subcontracts.
  - (g) Mitigating Factor. The Contracting Officer may consider whether the Contractor had a Trafficking in Persons awareness program at the time of the violation as a mitigating factor when determining remedies. Additional information about Trafficking in Persons and examples of awareness programs can be found at the website for the Department of State's Office to Monitor and Combat Trafficking in Persons at <http://www.state.gov/g/tip>.
- (End of clause)

52.242-4 CERTIFICATION OF FINAL INDIRECT COSTS (JAN 1997)

(a) The Contractor shall--

(1) Certify any proposal to establish or modify final indirect cost rates;

(2) Use the format in paragraph (c) of this clause to certify; and

(3) Have the certificate signed by an individual of the Contractor's organization at a level no lower than a vice president or chief financial officer of the business segment of the Contractor that submits the proposal.

(b) ) Failure by the Contractor to submit a signed certificate, as described in this clause, may result in final indirect costs at rates unilaterally established by the Contracting Officer.

(c) The certificate of final indirect costs shall read as follows:

CERTIFICATE OF FINAL INDIRECT COSTS

This is to certify that I have reviewed this proposal to establish final indirect cost rates and to the best of my knowledge and belief: 1. All costs included in this proposal (identify proposal and date) to establish final indirect cost rates for (identify period covered by rate) are allowable in accordance with the cost principles of the Federal Acquisition Regulation (FAR) and its supplements applicable to the contracts to which the final indirect cost rates will apply; and 2. This proposal does not include any costs which are expressly unallowable under applicable cost principles of the FAR or its supplements.

Firm:-----

Signature:-----

Name of Certifying Official:-----

Title:-----

Date of Execution:-----

(End of clause)

52.243-7 NOTIFICATION OF CHANGES (APR 1984)

(a) Definitions.

"Contracting Officer," as used in this clause, does not include any representative of the Contracting Officer.

"Specifically authorized representative (SAR)," as used in this clause, means any person the Contracting Officer has so designated by written notice (a copy of which shall be provided to the Contractor) which shall refer to this subparagraph and shall be issued to the designated representative before the SAR exercises such authority.

(b) Notice. The primary purpose of this clause is to obtain prompt reporting of Government conduct that the Contractor considers to constitute a change to this contract. Except for changes identified as such in writing and signed by the Contracting Officer, the Contractor shall notify the Administrative Contracting Officer in writing, within \_\_\_\_\_ calendar days from the date that the Contractor identifies any Government conduct (including actions, inactions, and written or oral communications) that the Contractor regards as a change to the contract terms and

conditions. On the basis of the most accurate information available to the Contractor, the notice shall state--

- (1) The date, nature, and circumstances of the conduct regarded as a change;
- (2) The name, function, and activity of each Government individual and Contractor official or employee involved in or knowledgeable about such conduct;
- (3) The identification of any documents and the substance of any oral communication involved in such conduct;
- (4) In the instance of alleged acceleration of scheduled performance or delivery, the basis upon which it arose;
- (5) The particular elements of contract performance for which the Contractor may seek an equitable adjustment under this clause, including--
  - (i) What contract line items have been or may be affected by the alleged change;
  - (ii) What labor or materials or both have been or may be added, deleted, or wasted by the alleged change;
  - (iii) To the extent practicable, what delay and disruption in the manner and sequence of performance and effect on continued performance have been or may be caused by the alleged change;
  - (iv) What adjustments to contract price, delivery schedule, and other provisions affected by the alleged change are estimated; and
- (6) The Contractor's estimate of the time by which the Government must respond to the Contractor's notice to minimize cost, delay or disruption of performance.

(c) Continued performance. Following submission of the notice required by (b) above, the Contractor shall diligently continue performance of this contract to the maximum extent possible in accordance with its terms and conditions as construed by the Contractor, unless the notice reports a direction of the Contracting Officer or a communication from a SAR of the Contracting Officer, in either of which events the Contractor shall continue performance; provided, however, that if the Contractor regards the direction or communication as a change as described in (b) above, notice shall be given in the manner provided. All directions, communications, interpretations, orders and similar actions of the SAR shall be reduced to writing and copies furnished to the Contractor and to the Contracting Officer. The Contracting Officer shall countermand any action which exceeds the authority of the SAR.

(d) Government response. The Contracting Officer shall promptly, within \_\_\_\_\_ calendar days after receipt of notice, respond to the notice in writing. In responding, the Contracting Officer shall either--

- (1) Confirm that the conduct of which the Contractor gave notice constitutes a change and when necessary direct the mode of further performance;
- (2) Countermand any communication regarded as a change;
- (3) Deny that the conduct of which the Contractor gave notice constitutes a change and when necessary direct the mode of further performance; or
- (4) In the event the Contractor's notice information is inadequate to make a decision under (1), (2), or (3) above, advise the Contractor what additional information is required, and establish the date by which it should be furnished and the date thereafter by which the Government will respond.

(e) Equitable adjustments.

- (1) If the Contracting Officer confirms that Government conduct effected a change as alleged by the Contractor, and

the conduct causes an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the work under this contract, whether changed or not changed by such conduct, an equitable adjustment shall be made--

- (i) In the contract price or delivery schedule or both; and
- (ii) In such other provisions of the contract as may be affected.

(2) The contract shall be modified in writing accordingly. In the case of drawings, designs or specifications which are defective and for which the Government is responsible, the equitable adjustment shall include the cost and time extension for delay reasonably incurred by the Contractor in attempting to comply with the defective drawings, designs or specifications before the Contractor identified, or reasonably should have identified, such defect. When the cost of property made obsolete or excess as a result of a change confirmed by the Contracting Officer under this clause is included in the equitable adjustment, the Contracting Officer shall have the right to prescribe the manner of disposition of the property. The equitable adjustment shall not include increased costs or time extensions for delay resulting from the Contractor's failure to provide notice or to continue performance as provided, respectively, in (b) and (c) above.

Note: The phrases "contract price" and "cost" wherever they appear in the clause, may be appropriately modified to apply to cost-reimbursement or incentive contracts, or to combinations thereof.

(End of clause)

#### 52.246-19 WARRANTY OF SYSTEMS AND EQUIPMENT UNDER PERFORMANCE SPECIFICATIONS OR DESIGN CRITERIA (MAY 2001)

Definitions. Acceptance means the act of an authorized representative of the Government by which the Government assumes for itself, or as an agent of another, ownership of existing and identified supplies, or approves specific services rendered, as partial or complete performance of the contract.

Defect means any condition or characteristic in any supplies or services furnished by the Contractor under the contract that is not in compliance with the requirements of the contract.

Supplies means the end items furnished by the Contractor and related services required under this contract. Except when this contract includes the clause entitled Warranty of Data, supplies also mean "data."

(b) Contractor's obligations. (1) The Contractor's warranties under this clause shall apply only to those defects discovered by either the Government or the Contractor [Contracting Officer shall state the warranty period; e.g., "at the time of delivery;" "within 45 days after delivery," or the specified event whose occurrence will terminate the warranty period; e.g., the number of miles or hours of use, or combination of any applicable events or periods of time.]

(2) If the Contractor becomes aware at any time before acceptance by the Government (whether before or after tender to the Government) that a defect exists in any supplies or services, the Contractor shall (i) promptly correct the defect, or (ii) promptly notify the Contracting Officer, in writing, of the defect, using the same procedures prescribed in paragraph (b)(3) of this clause.

(3) If the Contracting Officer determines that a defect exists in any of the supplies or services accepted by the Government under this contract, the Contracting Officer shall promptly notify the Contractor of the defect, in writing, within [Contracting Officer shall insert the specific period of time in which notice shall be given to the Contractor; e.g., "30 days after delivery of the nonconforming supplies;" "90 days of the last delivery under this contract;" or "90 days after discovery of the defect."] Upon timely notification of the existence of a defect, or

if the Contractor independently discovers a defect in accepted supplies or services, the Contractor shall submit to the Contracting Officer, in writing, within [Contracting Officer shall insert period of time] a recommendation for corrective actions, together with supporting information in sufficient detail for the Contracting Officer to determine what corrective action, if any, shall be undertaken.

(4) The Contractor shall promptly comply with any timely written direction from the Contracting Officer to correct or partially correct a defect, at no increase in the contract price.

(5) The Contractor shall also prepare and furnish to the Contracting Officer data and reports applicable to any correction required under this clause (including revision and updating of all other affected data called for under this contract) at no increase in the contract price.

(6) In the event of timely notice of a decision not to correct or only to partially correct, the Contractor shall submit a technical and cost proposal within [Contracting Officer shall insert period of time] to amend the contract to permit acceptance of the affected supplies or services in accordance with the revised requirement, and an equitable reduction in the contract price shall promptly be negotiated by the parties and be reflected in a supplemental agreement to this contract.

(7) Any supplies or parts thereof corrected or furnished in replacement and any services reformed shall also be subject to the conditions of this clause to the same extent as supplies or services initially accepted. The warranty, with respect to these supplies, parts, or services, shall be equal in duration to that set forth in paragraph (b)(1) of this clause, and shall run from the date of delivery of the corrected or replaced supplies.

(8) The Contractor shall not be responsible under this clause for the correction of defects in Government-furnished property, except for defects in installation, unless the Contractor performs, or is obligated to perform, any modifications or other work on such property. In that event, the Contractor shall be responsible for correction of defects that result from the modifications or other work.

(9) If the Government returns supplies to the Contractor for correction or replacement under this clause, the Contractor shall be liable for transportation charges up to an amount equal to the cost of transportation by the usual commercial method of shipment from the place of delivery specified in this contract (irrespective of the f.o.b. point or the point of acceptance) to the Contractor's plant and return to the place of delivery specified in this contract. The Contractor shall also bear the responsibility for the supplies while in transit.

(10) All implied warranties of merchantability and "fitness for a particular purpose" are excluded from any obligation under this contract.

(c) Remedies available to the Government. (1) The rights and remedies of the Government provided in this clause--

(i) Shall not be affected in any way by any terms or conditions of this contract concerning the conclusiveness of inspection and acceptance; and

(ii) Are in addition to, and do not limit, any rights afforded to the Government by any other clause of this contract.

(2) Within [Contracting Officer shall insert period of time] after receipt of the Contractor's recommendations for corrective action and adequate supporting information, the Contracting Officer, using sole discretion, shall give the Contractor written notice not to correct any defect, or to correct or partially correct any defect within a reasonable time at [Contracting Officer shall insert locations where corrections may be performed]

(3) In no event shall the Government be responsible for any extension or delays in the scheduled deliveries or periods of performance under this contract as a result of the Contractor's obligations to correct defects, nor shall there be any adjustment of the delivery schedule or period of performance as a result of the correction of defects unless provided by a supplemental agreement with adequate consideration.

(4) This clause shall not be construed as obligating the Government to increase the contract price.

(5)(i) The Contracting Officer shall give the Contractor a written notice specifying any failure or refusal of the Contractor to--

(A) Present a detailed recommendation for corrective action as required by paragraph (b)(3) of this clause;

(B) Correct defects as directed under paragraph (b)(4) of this clause; or

(C) Prepare and furnish data and reports as required by paragraph (b)(5) of this clause.

(ii) The notice shall specify a period of time following receipt of the notice by the Contractor in which the Contractor must remedy the failure or refusal specified in the notice.

(6) If the Contractor does not comply with the Contracting Officer's written notice in paragraph (c)(5)(i) of this clause, the Contracting Officer may by contract or otherwise--

(i) Obtain detailed recommendations for corrective action and either--

(A) Correct the supplies or services; or

(B) Replace the supplies or services, and if the Contractor fails to furnish timely disposition instructions, the Contracting Officer may dispose of the nonconforming supplies for the Contractor's account in a reasonable manner, in which case the Government is entitled to reimbursement from the Contractor, or from the proceeds, for the reasonable expenses of care and disposition, as well as for excess costs incurred or to be incurred;

(ii) Obtain applicable data and reports; and

(iii) Charge the Contractor for the costs incurred by the Government.

(End of clause)

#### 252.211-7003 ITEM IDENTIFICATION AND VALUATION (JUN 2011)

(a) Definitions. As used in this clause'

Automatic identification device means a device, such as a reader or interrogator, used to retrieve data encoded on machine-readable media.

Concatenated unique item identifier means--

(1) For items that are serialized within the enterprise identifier, the linking together of the unique identifier data elements in order of the issuing agency code, enterprise identifier, and unique serial number within the enterprise identifier; or

(2) For items that are serialized within the original part, lot, or batch number, the linking together of the unique identifier data elements in order of the issuing agency code; enterprise identifier; original part, lot, or batch number; and serial number within the original part, lot, or batch number.

Data qualifier means a specified character (or string of characters) that immediately precedes a data field that defines the general category or intended use of the data that follows.

DoD recognized unique identification equivalent" means a unique identification method that is in commercial use and has been recognized by DoD. All DoD recognized unique identification equivalents are listed at [http://www.acq.osd.mil/dpap/pdi/uid/iuid\\_equivalents.html](http://www.acq.osd.mil/dpap/pdi/uid/iuid_equivalents.html).

DoD unique item identification means a system of marking items delivered to DoD with unique item identifiers that have machine-readable data elements to distinguish an item from all other like and unlike items. For items that are serialized within the enterprise identifier, the unique item identifier shall include the data elements of the enterprise identifier and a unique serial number. For items that are serialized within the part, lot, or batch number within the enterprise identifier, the unique item identifier shall include the data elements of the enterprise identifier; the original part, lot, or batch number; and the serial number.

Enterprise means the entity (e.g., a manufacturer or vendor) responsible for assigning unique item identifiers to items.

Enterprise identifier means a code that is uniquely assigned to an enterprise by an issuing agency.

Government's unit acquisition cost means--

(1) For fixed-price type line, subline, or exhibit line items, the unit price identified in the contract at the time of delivery;

(2) For cost-type or undefinitized line, subline, or exhibit line items, the Contractor's estimated fully burdened unit cost to the Government at the time of delivery; and

(3) For items produced under a time-and-materials contract, the Contractor's estimated fully burdened unit cost to the Government at the time of delivery.

Issuing agency means an organization responsible for assigning a non-repeatable identifier to an enterprise (i.e., Dun & Bradstreet's Data Universal Numbering System (DUNS) Number, GS1 Company Prefix, or Defense Logistics Information System (DLIS) Commercial and Government Entity (CAGE) Code).

Issuing agency means an organization responsible for assigning a globally unique identifier to an enterprise (e.g., Dun & Bradstreet's Data Universal Numbering System (DUNS) Number, GS1 Company Prefix, Allied Committee 135 NATO Commercial and Government Entity (NCAGE)/Commercial and Government Entity (CAGE) Code, or the Coded Representation of the North American Telecommunications Industry Manufacturers, Suppliers, and Related Service Companies (ATIS-0322000) Number), European Health Industry Business Communication Council (EHIBCC) and Health Industry Business Communication Council (HIBCC)), as indicated in the Register of Issuing Agency Codes for ISO/IEC 15459, located at <http://www.nen.nl/web/Normen-ontwikkelen/ISOIEC-15459-Issuing-Agency-Codes.htm>.

Item means a single hardware article or a single unit formed by a grouping of subassemblies, components, or constituent parts.

Lot or batch number means an identifying number assigned by the enterprise to a designated group of items, usually referred to as either a lot or a batch, all of which were manufactured under identical conditions.

Machine-readable means an automatic identification technology media, such as bar codes, contact memory buttons, radio frequency identification, or optical memory cards.

Original part number means a combination of numbers or letters assigned by the enterprise at item creation to a class of items with the same form, fit, function, and interface.

Parent item means the item assembly, intermediate component, or subassembly that has an embedded item with a unique item identifier or DoD recognized unique identification equivalent.

Serial number within the enterprise identifier means a combination of numbers, letters, or symbols assigned by the enterprise to an item that provides for the differentiation of that item from any other like and unlike item and is never used again within the enterprise.

Serial number within the part, lot, or batch number means a combination of numbers or letters assigned by the enterprise to an item that provides for the differentiation of that item from any other like item within a part, lot, or batch number assignment.

Serialization within the enterprise identifier means each item produced is assigned a serial number that is unique among all the tangible items produced by the enterprise and is never used again. The enterprise is responsible for ensuring unique serialization within the enterprise identifier.

Serialization within the part, lot, or batch number means each item of a particular part, lot, or batch number is assigned a unique serial number within that part, lot, or batch number assignment. The enterprise is responsible for ensuring unique serialization within the part, lot, or batch number within the enterprise identifier.

Unique item identifier means a set of data elements marked on items that is globally unique and unambiguous. The term includes a concatenated unique item identifier or a DoD recognized unique identification equivalent.

Unique item identifier type means a designator to indicate which method of uniquely identifying a part has been used. The current list of accepted unique item identifier types is maintained at [http://www.acq.osd.mil/dpap/pdi/uid/uii\\_types.html](http://www.acq.osd.mil/dpap/pdi/uid/uii_types.html).

(b) The Contractor shall deliver all items under a contract line, subline, or exhibit line item.

(c) Unique item identifier.

(1) The Contractor shall provide a unique item identifier for the following:

(i) All delivered items for which the Government's unit acquisition cost is \$5,000 or more.

(ii) The following items for which the Government's unit acquisition cost is less than \$5,000:

-----	
Contract line, subline, or exhibit line	
item No.	Item description
-----	

(iii) Subassemblies, components, and parts embedded within delivered items as specified in Attachment Number ----  
.

(2) The unique item identifier and the component data elements of the DoD unique item identification shall not change over the life of the item.

(3) Data syntax and semantics of unique item identifiers. The Contractor shall ensure that--

(i) The encoded data elements (except issuing agency code) of the unique item identifier are marked on the item using one of the following three types of data qualifiers, as determined by the Contractor:

(A) Application Identifiers (AIs) (Format Indicator 05 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology--EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(B) Data Identifiers (DIs) (Format Indicator 06 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology--EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(C) Text Element Identifiers (TEIs) (Format Indicator 12 of ISO/IEC International Standard 15434), in accordance with the Air Transport Association Common Support Data Dictionary; and

(ii) The encoded data elements of the unique item identifier conform to the transfer structure, syntax, and coding of messages and data formats specified for Format Indicators 05, 06, and 12 in ISO/IEC International Standard 15434, Information Technology--Transfer Syntax for High Capacity Automatic Data Capture Media.

(4) Unique item identifier.

(i) The Contractor shall--

(A) Determine whether to--

(1) Serialize within the enterprise identifier;

(2) Serialize within the part, lot, or batch number; or

(3) Use a DoD recognized unique identification equivalent; and

(B) Place the data elements of the unique item identifier (enterprise identifier; serial number; DoD recognized unique identification equivalent; and for serialization within the part, lot, or batch number only: original part, lot, or batch number) on items requiring marking by paragraph (c)(1) of this clause, based on the criteria provided in the version of MIL-STD-130, Identification Marking of U.S. Military Property, cited in the contract Schedule.

(ii) The issuing agency code--

(A) Shall not be placed on the item; and

(B) Shall be derived from the data qualifier for the enterprise identifier.

(d) For each item that requires unique item identification under paragraph (c)(1)(i) or (ii) of this clause, in addition to the information provided as part of the Material Inspection and Receiving Report specified elsewhere in this contract, the Contractor shall report at the time of delivery, either as part of, or associated with, the Material Inspection and Receiving Report, the following information:

(1) Unique item identifier.

(2) Unique item identifier type.

(3) Issuing agency code (if concatenated unique item identifier is used).

(4) Enterprise identifier (if concatenated unique item identifier is used).

(5) Original part number (if there is serialization within the original part number).

(6) Lot or batch number (if there is serialization within the lot or batch number).

(7) Current part number (optional and only if not the same as the original part number).

(8) Current part number effective date (optional and only if current part number is used).

(9) Serial number (if concatenated unique item identifier is used).

(10) Government's unit acquisition cost.

(11) Unit of measure.

(e) For embedded subassemblies, components, and parts that require DoD unique item identification under paragraph (c)(1)(iii) of this clause, the Contractor shall report as part of, or associated with, the Material Inspection and Receiving Report specified elsewhere in this contract, the following information:

(1) Unique item identifier of the parent item under paragraph (c)(1) of this clause that contains the embedded subassembly, component, or part.

(2) Unique item identifier of the embedded subassembly, component, or part.

(3) Unique item identifier type.\*\*

(4) Issuing agency code (if concatenated unique item identifier is used).\*\*

(5) Enterprise identifier (if concatenated unique item identifier is used).\*\*

(6) Original part number (if there is serialization within the original part number).\*\*

(7) Lot or batch number (if there is serialization within the lot or batch number).\*\*

(8) Current part number (optional and only if not the same as the original part number).\*\*

(9) Current part number effective date (optional and only if current part number is used).\*\*

(10) Serial number (if concatenated unique item identifier is used).\*\*

(11) Description.

\*\* Once per item.

(f) The Contractor shall submit the information required by paragraphs (d) and (e) of this clause in accordance with the data submission procedures at [http://www.acq.osd.mil/dpap/pdi/uid/data\\_submission\\_information.html](http://www.acq.osd.mil/dpap/pdi/uid/data_submission_information.html).

(g) Subcontracts. If the Contractor acquires by subcontract, any item(s) for which unique item identification is required in accordance with paragraph (c)(1) of this clause, the Contractor shall include this clause, including this paragraph (g), in the applicable subcontract(s).

(End of clause)

#### 252.246-7000 MATERIAL INSPECTION AND RECEIVING REPORT (MAR 2008)

(a) At the time of each delivery of supplies or services under this contract, the Contractor shall prepare and furnish to the Government a material inspection and receiving report in the manner and to the extent required by Appendix F, Material Inspection and Receiving Report, of the Defense FAR Supplement.

(b) Contractor submission of the material inspection and receiving information required by Appendix F of the Defense FAR Supplement by using the Wide Area WorkFlow (WAWF) electronic form (see paragraph (b) of the clause at 252.232-7003) fulfills the requirement for a material inspection and receiving report (DD Form 250). Two copies of the receiving report (paper copies of either the DD Form 250 or the WAWF report) shall be distributed with the shipment, in accordance with Appendix F, Part 4, F-401, Table 1, of the Defense FAR Supplement.

(End of clause)

## Section L - Instructions, Conditions and Notices to Bidders

SECTION L52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE  
(FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The Offeror is cautioned that the listed provisions may include blocks that must be completed by the Offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the Offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address (es):

<http://farsite.hill.af.mil>

<http://www.arnet.gov/far/>

## PROVISIONS INCORPORATED BY REFERENCE

52.204-6	Data Universal Numbering System (Duns) Number	OCT 2003
52.214-7	Late Submissions, Modifications, And Withdrawals Of Bids	NOV 1999
52.214-34	Submission Of Offers In The English Language	APR 1991
52.214-35	Submission Of Offers In U.S. Currency	APR 1991
52.215-1	Instructions To Offerors – Competitive Acquisition	JAN 2004
52.216-27	Single or Multiple Awards	OCT 1995
52.216.29	Time-and-Material/Labor-Hour Proposal Requirements- Non-Commercial Item Acquisition with Adequate Price Competition	FEB 2007
52.219-24	Small Disadvantaged Business Participation Program – Targets	OCT 2000
52.222-46	Evaluation Of Compensation For Professional Employees	FEB 1993
52.237-1	Site Visit	APR 1984

## PROVISIONS INCORPORATED BY FULL TEXT

52.211-14 NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE  
(SEP 1990)

Any contract awarded as a result of this solicitation will be a DO rated order certified for national defense use under Defense Priorities and Allocations Systems (DPAS) (15 CFR Part 700), and the Offeror will be required to follow all of the requirements of the regulations.

52.216-1 TYPE OF CONTRACT  
(APR 1984)

The Government contemplates award of a Firm Fixed Price / Time and Material contract resulting from this solicitation. No performance based payments shall be authorized. See Section B.

## 52.233-2 SERVICE OF PROTEST (AUG 1996)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from:

MARCORSYSCOM / PMTRASYS  
ATTN: Mr. John E. Lynch  
12350 Research Parkway  
Orlando, FL 32826-3275

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

## 52.252-5 AUTHORIZED DEVIATIONS IN PROVISIONS (APR 1984)

(a) The use in this solicitation of any Federal Acquisition Regulation (48 CFR Chapter 1) provision with an authorized deviation is indicated by the addition of “(DEVIATION)” after the date of the provision.

(b) The use in this solicitation of any Defense Federal Acquisition Regulation Supplement (48 CFR Chapter 2) provision with an authorized deviation is indicated by the addition of “(DEVIATION)” after the name of the regulation.

## L- 1 ANTICIPATED AWARD DATE

The anticipated award date for this requirement is 01 April 2012. The contract period of performance is for one year after date of contract award with 2 one year option periods.

## L- 2 PRE-SOLICITATION CONFERENCE/SITE VISIT

A pre-solicitation conference/site visit to PM-TRASYS, Orlando,FL, is scheduled for prospective Offerors 0900-1500 EST, 06 December 2011. Access to Deployable Virtual Training Environment (DVTE) by potential offerors will be made at this time.

## L-3 NUMBER OF AWARDS

The Government intends to award a single contract with multiple task/delivery orders under this RFP. However, multiple contracts may be awarded if the Government deems it advantageous in the Government’s sole and exclusive discretion. The Contract will consist of a Mobilization period, base period (one year) and two (2) one-year options. Efforts under this contract will be issued in a task order structure in accordance with the SOW.

#### L-4 DISPOSITION OF PROPOSALS

After selection and award of this (these) contract(s), unsuccessful proposals shall be disposed of as follows: The Contracting Officer shall retain one copy of each proposal and the remaining copies will be destroyed. Destruction certification will not be furnished. Absolutely no proposals will be returned to the Offerors.

#### L-5 SPECIAL NOTICE TO OFFERORS

The Government intends to evaluate proposals and award a contract without discussions. Therefore, the Offeror's initial proposal should contain the Offeror's best terms from a technical, management, schedule and price standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary.

##### L-5.1 Source Selection Team Members

The exclusive responsibility for source selection will reside with the Government. Proprietary information submitted in response to this solicitation will be protected from unauthorized disclosure as required by Subsection 27 of the Office of Procurement Policy Act as amended (41 U.S.C. 423) (hereinafter referred to as "the Act") as implemented in the FAR. Each evaluator will sign and provide a copy to the Contracting Officer a "Conflict of Interest Acknowledgment and Nondisclosure Agreement."

##### L-5.2 Proposal Property

Upon receipt, all proposals become Government property. All information, data, drawings, specifications, etc., provided to the offerors by the Government must be returned with the proposals. Failure to return any GFE/GFI supplied pre-proposal may result in proposal disqualification.

#### L - 6 PROPOSAL RESPONSE REQUIREMENTS

##### L - 6.1 General

The Offeror shall submit documentation illustrating their approach for satisfying the requirements of this solicitation. Proposals must be clear, coherent, and prepared in sufficient detail for effective evaluation of the Offeror's proposal against the evaluation criteria. Also, this documentation shall cover all aspects of this solicitation and include the Offeror's approach for integration and program management activities. Proposals must clearly demonstrate how the Offeror intends to accomplish the project and must include convincing rationale and substantiation of all claims. Unnecessarily elaborate brochures or other presentations beyond those sufficient to present a complete effective response to the solicitation are not desired.

The Offerors shall describe their proposals, through the use of graphs, charts, diagrams and narrative, in sufficient detail for the Government to understand and evaluate the nature of the approach. In its evaluation, the Government will consider the degree of substantiation of the proposed approaches in the proposal volumes and in response to any discussions, if held.

Offerors are encouraged to review the requirements, seek to be innovative in their approach to providing the services, and maximize efficiencies and economies of scale. Capabilities may be established within either the Offeror's corporate structure or through teaming arrangements. The Government is neither encouraging nor discouraging teaming arrangements and will focus on the Offeror's proposed approach to perform work and satisfy the requirements. No alternate proposals shall be accepted. The Contracting Officer and Contract Specialist are the points of contact for this acquisition. All correspondence in conjunction with this solicitation should be directed to the Governments Point of Contact below.

PMTRASYS – USMC

Attn: Fred Boehne

Contract Specialist

12650 Research Parkway

Orlando, FL 32826-8482

Email: [fred.j.boehne@usmc.mil](mailto:fred.j.boehne@usmc.mil)

or

Attn: Mr. John E. Lynch,

Contracting Officer

12650 Research Parkway

Orlando, FL 32826-8482

Email: [john.e.lynch2@usmc.mil](mailto:john.e.lynch2@usmc.mil)

Note: All questions shall be received by 1300 EST, 16 December 2011. No phone calls will be accepted.

#### L-6.2 Submission Due Dates.

Offers must be received prior to TBD. Late submissions will not be accepted.

#### L-6.3 Restriction Of Disclosure/Proprietary Information.

If the Offeror wishes to restrict the disclosure or use of its proposal, use the legend permitted by FAR 52.215-1(e). Individual subcontractor/vendor proprietary information may be submitted via separate binders/CDs. The information contained in these binders/CDs must be referenced (by binder title, page and section number as appropriate) within the main proposal where the information would have been included if it were not subcontractor/vendor proprietary. The information in these separate binders/CDs is subject to all other requirements of the RFP and must be well-marked to clearly indicate any special handling instructions.

##### L-6.3.1 Notice To Offerors Regarding Submission Of Proposal Packages

Offerors are advised that proposals shall be accepted only from those Offerors proposing as potential prime contractors. Such Offerors shall be responsible for submitting complete proposal packages containing all components of the proposal inclusive of subcontract proposals. Separate proposal envelopes or packages containing components of your offer, such as proposed subcontracts, shall be accepted.

#### L-6.4 Proposal Volume Requirements

The proposal shall be accompanied by a cover letter prepared on the company's letterhead stationery. The cover letter shall identify all enclosures being submitted and shall be used only to submit the proposal and shall include no other information. The first or title page shall be in accordance with FAR 52.215-1 paragraph (c) (2). The following are further descriptions of the information that shall be provided with the proposal.

VOLUME	ELECTRONIC COPIES	PAPER COPIES	PAGE LIMITS
Volume I – Executive Summary/General	1	1 original + 4 copies	10 pages
Volume II – Technical Proposal	5	1 original + 4 copies	100 pages maximum
Volume III- Management/Schedule Proposal	5	1 original + 4 copies	50 pages maximum
Volume IV – Cost/Price Proposal	2	1 original + 1 copies	No Limitation
Volume V – Past Performance	2	1 original + 1 copies	50 pages maximum

##### L-6.4.1 Page Limitations.

The cover letter, title page, table of contents, table of figures, list of tables, SDP, resumes and glossary of abbreviations & acronyms do not count against page count limitations. Proposal content that exceed the stated page limitation will be removed from the proposal by the Contracting Officer, prior to turning the proposal over to the Government Source Selection teams, and will not be considered in the evaluation.

##### L- 6.4.2 Format.

Text shall be single-space on 8 ½" x 11" paper (except as specifically noted), with a minimum one-inch margin all around. Pages shall be numbered consecutively. A page printed on both sides shall be considered two pages. Submissions as double-sided printing/copying on recycled paper are encouraged. 11" x 17" size fold-out pages may be used for tables, charts, graphs, or pictures that cannot be legibly presented on 8 ½' x 11" paper. An 11 x 17" is a two sheet equivalent (with regards to the page count limitations). Print shall be a minimum of 11 point font. Bolding, underlining, and italics may be used to identify topic demarcations or points of emphasis. Graphic presentations, including tables, while not subject to the same font size and spacing requirement, shall have spacing and text that is easily readable. Each volume in the proposal shall include a copy of the cover letter, title page and table of contents. The table of

contents shall list sections, subsections and page numbers. Each volume shall contain a glossary of all abbreviations and acronyms used. Each acronym used shall be spelled out in the text the first time it appears in the proposal volume. Each volume shall be bound separately in hard side three-ring binders (e.g. Volume I – Executive Summary in a binder, Volume II – Technical, Volume III - Management/Schedule Proposal in a binder, etc.).

#### L-6.4.3 Content

L-6.4.3.1 An Offeror's proposal must be written in a logical, practical, clear and concise manner and contain all pertinent information in sufficient detail to provide the evaluators with a clear understanding of the Offeror's approach and to permit evaluation of the proposed program. It is the responsibility of the Offeror to present enough information to allow the stated requirements to be meaningfully evaluated without discussions. The Offeror must include any data necessary to illustrate the adequacy of the various assumptions, approaches, and solutions to problems. In presenting material in this proposal, the Offeror is advised that quality of information is more important than quantity. Offerors are encouraged to use quantitative terms wherever possible and avoid the use of qualitative and subjective terms to the maximum extent practicable. A proposal must be internally consistent or the proposal will be considered unrealistic and may be considered unacceptable.

L-6.4.3.2 All proposals must clearly and convincingly demonstrate that the Offeror has a thorough understanding of the requirements and associated risks, and is able, willing, and competent to devote the resources necessary to meet the requirements and has valid and practical solutions for all requirements. Statements of understanding by the prospective Offeror indicating they can or will comply with the SOW. SOW or statements paraphrasing the requirements or parts thereof are considered inadequate and unsatisfactory.

L-6.4.3.3 Any data previously submitted in response to another solicitation, whether submitted to the U. S. Marine Corps, PM Training Systems or any other agency, should be assumed to be unavailable during this proposal evaluation and source selection process. Proposal data shall not be incorporated into the proposal by referring to another proposal or other instrument. Unnecessarily elaborate brochures or other presentations beyond that sufficient to present a complete and effective proposal are neither necessary nor desired.

L-6.4.3.4 The Government intends to minimize the amount of space required for the storage of material classified as SECRET or higher. However, for the purposes of this acquisition, no classified material at the SECRET level or higher will be required for inclusion in the proposals. Therefore, there is no need for a separately bound volume for classified material.

#### L – 6.4.4 Cross Referencing.

Each volume, except the Cost volume, shall be written to the greatest extent possible on a stand-alone basis so that its content may be evaluated with a minimum of cross-referencing to other volumes of the proposal. Cross-referencing within a proposal volume is permitted where its use would conserve space without impairing clarity. Hyper linking of cross-references is permissible in the electronic submission (CD) excepted as noted. Information required for proposal

evaluation, which is not found in its designated volume or cross-referenced, is assumed omitted from the proposal.

#### L- 6.4.5 Electronic Submission of Proposal.

All electronic data shall be submitted on a virus free, Compact Disk (CD). Narrative text shall be submitted in searchable Adobe \*.pdf format and spreadsheets shall be submitted in Microsoft Excel \*.xls format. The price data shall be in Microsoft Excel with all links and formulas intact and shall be maintained throughout all revisions. NOTE: Do NOT provide Pricing spreadsheets in Adobe Acrobat or word processing format. All CDs shall be submitted in a non-compressed, PC format. It is pertinent that all field/files in the pricing proposal remain "UNLOCKED, NON-PASSWORD PROTECTED AND/OR UNPROTECTED". Do not include "pivot tables" in spreadsheets.

The offeror shall be responsible for ensuring that its electronic proposals are virus free. The offeror shall certify in its proposal cover letter that all electronic proposal information has been checked for viruses, and what software, version and virus definitions were used to check the data. The offeror shall also ensure and certify that any subsequent proposal information (e.g., responses to evaluation notices, and Final Proposal Revisions) is also virus free.

If a discrepancy exists between the original paper copy of the proposal and the disk copy, the paper copy will take precedence.

#### L- 6.5 TIME, DATE AND PLACE FOR RECEIPT OF SUBMITTALS

##### L - 6.5.1 Instructions For Mailed Offers

Proposals shall be mailed as follows:

PMTRASYS  
Program Manager for Training Systems (PM TRASYS)  
ATTN: Mr. John E. Lynch  
12350 Research Parkway  
Orlando, FL 32826-3275

Late submissions will not be accepted,

##### L- 6.5.2 Instructions For Hand Carried Offers

If the proposal or final proposal revision (if and when a final proposal revision is requested) is hand carried, the Offeror may bring a transmittal form to be completed by the receiving official, prior to the closing date specified in Block 9 of the Standard Form 33 for proposals or as specified in the amendment/letter request for final revised proposal. All hand-carried offers shall be delivered to the following address:

UCF Partnership III – 5th Floor  
3039 Technology Parkway  
Orlando, FL 32826  
Attention: Mr. Fred Boehne

Contact Phone Numbers for Delivery:

Mr. Fred Boehne	407-380-4269
Mr. John E. Lynch	407-380-4197
Ms. Maria Beauford	407-380-8257

**NOTE:** Hand carried offers must be present to Mr. Fred Boehne, Mr. John Lynch or Ms. Maria Beauford only. Submissions to any other person or place may not be considered timely.

#### L-6.5.3 Non-Authorized Submissions

Submission of email or facsimile offers is not authorized for this solicitation.

#### L- 6.5.4 Communicating With the Contracting Office

Solicitation information and amendments will be posted to the Federal Business Opportunities website at [www.eps.gov](http://www.eps.gov). Offerors may e-mail written questions requesting clarification of the RFP to the government via the Contract Specialist, Fred Boehne, at [fred.j.boehne@usmc.mil](mailto:fred.j.boehne@usmc.mil). The Government will answer questions received up to noon 28 April 2011. Questions received after this date may not be answered. Only proposals submitted in accordance with section L 6.4 entitled “Proposal Volume Requirements” of this solicitation will be accepted.

### L-7 VOLUME REQUIREMENTS

#### L-7.1 Executive Summary (VOLUME I)

Note: This volume shall not contain any reference to price aspects of the offer. The evaluation will not take any information contained in the Executive Summary into consideration.

The purpose of the Executive Summary is to provide the evaluators with an overview of the Offeror’s entire proposal, excluding price. Each section should contain the salient points contained in each of the volumes. In addition, it should be used by the Offeror to identify and highlight significant features of the proposal. This volume should be divided into the following sections:

- a) Technical - The Offeror shall provide a high level overview of the organization, organizational structure, how the organizational relationships facilitate the performance of the solicitation task orders, and identify how this structure and relationship addresses the requirements of this solicitation as well as the salient features of its approach.

- b) Experience - Summary of the Offeror's (principal subcontractors, critical subcontractors, and team members) relevant experience, which pertains to the tasks required to complete this program.
- c) Past Performance - Summary of the Offeror's (principal subcontractors, critical subcontractors, and team members) past performance and systemic improvements which pertains to the tasks required to complete this program.
- d) Contract document signatures - In addition to the above, provide the following as separate attachments that will be used for issuing the contract.
  - Signed SF33 for basic solicitation and each amendment
  - Signed Representations, Certifications, and Acknowledgements or Online Representations and Certifications Application (ORCA) reference

## L-7.2 Technical (VOLUME II)

### L-7.2.1 General

The technical proposal shall include cross reference indexes for the following:

#### SOW Cross Reference Index

- Column 1 - List all SOW paragraphs in numerical order. These can be listed in the same or different tables.
- Column 2 - Applicable proposal paragraph(words)( indicate not applicable "N/A" if no information is appropriate for specific SOW and performance specification paragraph number)
- Column 3 - Applicable proposal page number
- Column 4 - Applicable proposal paragraph numbers

#### Contract schedule and data deliverables

- Column 1 - List all contract schedule and data deliverable sections or item numbers
- Column 2 - Applicable proposal paragraph( words) (indicate not applicable "N/A" if no information is appropriate for specific SOW)
- Column 3 - Applicable proposal page numbers
- Column 4 - Applicable proposal paragraph number

Technical shall include the Technical Summary and sections to cover detailed information as described below. The offeror shall provide rationale sufficient to allow an objective evaluation of their technical approach. No cost information shall be included in the Technical Summary or any section. The Technical proposal shall be separated by tabs to reflect the appendices discussed below. Each paragraph within the Technical Volume shall identify the pertinent paragraph in the SOW and shall correspond to a single cross-reference table (within the Technical Volume) to the SOW.

L-7.2.2 Technical shall be organized in the following format:

Sub-Factor A: Software Development Experience with DVTE JSAF, NTB JSAF, and VBS2.

Sub-Factor B: System and Software Engineering Processes.

Sub-Factor C: Task Order Technical Approach.

L-7.2.2.1

Sub-Factor A: Software Development Experience with DVTE JSAF, NTB JSAF, and VBS2.

L-7.2.2.1.1 Offerors shall describe their software engineering experience with DVTE JSAF, Naval Training Baseline (NTB) JSAF and Virtual Battlespace 2 (VBS2).

L-7.2.2.1.2 Offerors shall identify and describe the experience/background of the following key technical personnel (at a minimum): System/Software Architect, Lead System/Software Engineer, Lead Integration Engineer, Lead Test Engineer, and Information Systems Security Engineer (ISSE).

L-7.2.2.1.3 Offerors shall describe their background/experience in developing interoperable solutions for VBS2 and DVTE JSAF with external systems. Offerors shall include in their description their technical approach for improving and maintaining interoperability between (a) VBS2 and DVTE JSAF, (b) VBS2 and external systems, and (c) DVTE JSAF and external systems.

L-7.2.2.2 Sub-Factor B: System and Software Engineering Processes

L-7.2.2.2.1 As part of the proposal, Offerors shall submit a draft version of their Software Development Plan (SDP) in accordance with the content defined in the SOW. The SDP may be formatted as desired by the Offeror but must contain the information described in the SDP CDRL.

L-7.2.2.2.2 Offerors shall describe the software development lifecycle metrics they plan to implement, based upon previous application of these metrics in similar programs, in order to minimize software defects and software rework, improve software quality, manage software development progress, reduce risk, and the rationale for applying these metrics. Offerors shall describe how these metrics will be communicated to the Government.

L-7.2.2.2.3 Offerors shall describe how their proposed software development processes, as specified in the draft Software Development Plan, are equivalent to those articulated by the Capability Maturity Model Integration (CMMI) capability or maturity level 3, at a minimum.

Offerors shall describe previous CMMI or equivalent model-based process maturity appraisals performed. As part of this description, the Offeror shall identify the organizational entity that performed the appraisal, and location where the appraisal was performed, the type of evaluation performed, and the level earned.

L-7.2.2.2.4 Offerors shall describe their information assurance strategy to ensure the DVTE product baseline is compliant with the Information Assurance Category III and Classification Level Sensitive system.

L-7.2.2.3 Sub-Factor C: Sample Task Order Technical Approach

L-7.2.2.3.1 Offerors shall describe their technical approach to designing, developing, integrating, and testing DVTE 2D and 3D terrain databases in support of the requirements defined in the task order.

L-7.2.2.3.2 Offerors shall describe their technical approach to developing, integrating, and testing 3D models in support of the requirements in the task order.

L-7.3 Management & Schedule (VOLUME III)

L- 7.3.1 Management

L-7.3.1.1 Management Approach - The offeror shall provide a detailed narrative outlining the management approach. The narrative should include all activities that are planned, coordinated, controlled, scheduled, monitored, managed, and reported.

L-7.3.1.2 Management Qualifications - The offeror shall demonstrate that management has the relevant qualifications, experience and capabilities to perform the program management responsibilities. The offeror shall describe the facility and staffing resources currently in place to meet the requirements of the SOW and subsequent development task orders.

L-7.3.1.3 Resources - The offeror shall also identify the resources that will be required beyond the facilities currently owned and personnel currently employed.

L-7.3.1.4 Organizational Structure - The offeror shall provide an organizational chart, descriptions of functions and responsibilities, and descriptions of the line of authority and control showing;

- (a) the Offeror's corporate and line organization
- (b) the planned project organization down to the functional working level
- (c) names and organizational charts of all planned subcontractors, and
- (d) how organizational groups will interface with each other at the project and program levels. If subcontractors are to be utilized, the specific tasks and role of each subcontractor shall be stated and described.
- (e) If utilizing the same person for PDSS and a developmental task, provide the plan of how this person(s) time will be allocated.

L-7.3.1.5 Key Personnel - The offeror shall provide the resumes of key personnel including, as a minimum, the equivalents of: Project Manager, Lead Systems Architect, Lead Integration Engineer, PDSS Test Engineer, ILS manager and technical manager. Resumes shall cover current position and duties as well as relevant experience, education, and accomplishments. Resumes are not included in page count for the Management volume, but each resume is limited to two (2) pages. No more than fifteen resumes may be submitted.

L-7.3.1.6 Management Processes - The Offeror shall describe processes used for risk mitigation, quality assurance, configuration management, and program performance assessment in technical and programmatic areas. The Offeror shall describe software quality assurance methodologies and tools used for: internal evaluations, corrective actions, validation of analysis and design, consistency of the design and implementation, and testing.

L-7.3.1.7 WBS - The offeror shall provide a Work Break Schedule (WBS) to level 3 as it relates to this SOW and taskings.

#### L-7.3.2 Schedule

L-7.3.2.1 IMS - The Offeror shall provide an Integrated Master Schedule (IMS) that depicts PDSS and software design efforts, program/design reviews, status meetings, installation, testing and acceptance, and other significant tasks in Microsoft Project 2003 format. The Offeror shall provide a program schedule commensurate with milestone events of the RFP and Offeror's proposal. The Offeror shall clearly depict the milestone events and tasks. The Offeror shall discuss the management tools and methods used to measure and report program status. The program schedule shall be broken down from a top level to subsequent levels sufficient to provide insight into the tasks, implementation, and management of the CACCTUS program. The schedule shall include detailed tasks and subtasks as well as include the critical path.

L-7.3.2.1.1 Sample Task Order Schedule - The offeror shall provide a proposed schedule for the implementation of the sample task order. At a minimum, the offeror's schedule shall identify all key tasks, milestones and deliverables associated with this task order. The offeror shall integrate the proposed schedule for the sample task order into the overall project IMS identifying critical paths and dependencies.

Note: No cost or price information shall be included in the management or schedule proposal.

#### L-7.4 Pricing Proposal (VOLUME IV)

##### L-7.4.1 Price Proposal. SF 33

The Offeror shall provide a completed and signed SF 33, Solicitation, Offer and Award. The price proposal shall consist of Sections A through K. For Section B, ensure prices are entered for all items for which space has been provided. The only items that don't require a price to be entered or that can be Not Separately Priced (NSP) are those which have been so designated by

the Government. To facilitate contract administration, Offerors are required to submit line/sub-line item unit prices rounded to the nearest whole dollar.

#### L-7.4.2 Evaluated Price

The Offeror shall provide a total evaluated price which consists of a total of the CLINs and the sample task order using the defined development position categories.

#### L-7.4.3 Developmental Support

A list of development position categories (SOW, Appendix C) is provided for consideration.

Developmental support rates are inclusive of all overhead, general and administrative and profit.

#### L-7.4.3.1 The Offeror shall price developmental support cost for the provided list of developmental positions (SOW, Appendix C) to support this contract.

The offeror must specify fixed unit rates in its offer that includes wages, overhead, general and administrative expenses, and profit. The offeror shall provide the details of said rate. The offeror must specify the fixed rate for each category as it applies to development performed by—

- (1) The offeror;
- (2) Subcontractors; and/or
- (3) Divisions, subsidiaries, or affiliates of the offeror under a common control;

The offeror must establish fixed unit rates using separate rates for each category to be performed by each subcontractor and for each category to be performed by the offeror, and for each category to be transferred between divisions, subsidiaries, or affiliates of the offeror under a common control. Each category may contain only one rate.

- a) Labor Hours: Section B represents fully-loaded unit rates for each classification. The fully-burdened rate includes all direct, indirect, general and administrative costs and profit associated with providing the required skill. The fully burdened rate includes all labor and related costs, such as, but not limited to the following list of representative related costs: salaries, wages, bonuses to include stock bonuses, incentive awards, employee stock options, stock appreciation rights, employee stock ownership plans, employee insurance, fringe benefits, contributions to pensions, other post-retirement benefits, annuity, employee incentive compensations plans, incentive pay, shift differentials, overtime, vacation time, sick pay, holiday and all other allowances based upon a comprehensive employee compensation plan. The use of uncompensated overtime is not encouraged. As this work will not be performed in Government spaces, the contractor shall include in their fully burdened rates a rate that supports office space and all normal supplies and services required to support this space. This includes, but is not limited to, telephone, faxes, copiers, personal computers, postage, ordinary business software, normal copying and reproduction costs.
- b) Program Management Support Costs. Contract level program management support costs are to be included in the PDSS fixed rate. A task order manager may be established to implement each task order. Task order manager will be established as needed for each task order and encompass support for the contract level management, reporting requirements and related travel and meeting attendance cost associated with the task

order only. Task Order Managers can be used to support project management for the task order.

- c) The priced development unit rates will be incorporated in Section B upon award.

L-7.4.3.2 For pricing evaluation, the offer will provide the full extended cost for each Position Description as it applies to the sample task order. (Do not include PDSS).

- a) Task Order Manager (Not the Program Manager)
- b) Software Systems Architect
- c) Sr. Software Engineer
- d) Software Engineer
- e) Systems Engineer
- f) Network Engineer
- g) Test Engineer
- h) Information Systems Security Engineer
- i) Logistician
- j) Technical Writer
- k) Subject Matter Expert
- l) System Administrator

#### L- 7.4.4 Financial Stability

The Offeror shall provide information describing existing financial stability and company infrastructure via an independent analysis from outside agency such as the Dun & Bradstreet report or other independent analysis of financial strength.

#### L-7.5 Past Performance (VOLUME V)

The offeror shall submit a past performance volume containing contractual experience as indicated below. Information is required on the offeror and those subcontractors and/or team members the offeror considers critical to the overall successful performance of the requirements. Offerors are cautioned that the Government will use data provided by the offeror in this volume and data obtained from other sources in the evaluation of past performance. The offeror shall submit, along with the information required in this paragraph, a consent letter, executed by each subcontractor, teaming partner, and/or joint venture partner, authorizing release of adverse past performance information to the offeror so the offeror can respond to such information.

##### L - 7.5.1 Adverse Past Performance

In accordance with FAR 15.306, the Offeror may be given the opportunity to discuss adverse past performance information obtained from this questionnaire if they have not previously responded through Contractor Performance Assessment Reporting System (CPARS) or similar system. However, the names of individuals providing the information shall not be disclosed.

### L-7.5.2 Government Contracts

Offerors shall submit a list of all Government contracts in performance or awarded (prime and major subcontracts (including Federal, State, local government and private) during the past three years, which are relevant to the efforts required by this solicitation. Relevant efforts are defined as efforts involving PDSS, integration of constructive simulations, OneSAF programming, integration of C4I systems into other training systems, integration of training simulators or for contracts similar to this effort. Data concerning the prime offeror shall be provided first, followed by each proposed major subcontractor, in alphabetical order. The Past Performance volume shall be organized in the following format:

- a. Contract Descriptions
- b. Performance
- c. Past Performance Questionnaire

#### L- 7.5.2.1 Contract Descriptions

This section shall include the following information in the following format:

- (a) Contractor/Subcontractor place of performance, CAGE Code and DUNS Number. If the work was performed as a subcontractor, also provide the name of the prime contractor and Point of Contact (POC) within the prime contractor organization (name, and current address, e-mail address, and telephone and fax numbers).
- (b) Government contracting activity, and current address, Procuring Contracting Officer's name, e-mail address, telephone and fax numbers.
- (c) Government's technical representative/COR, and current e-mail address, telephone and fax numbers.
- (d) Government contract administration activity and the Administrative Contracting Officer's name, and current e-mail address, telephone and fax numbers.
- (e) Government contract administration activity's Pre-Award Monitor's name, and current e-mail address, telephone and fax numbers.
- (f) Contract Number and, in the case of Indefinite Delivery type contracts, GSA contracts, and Blanket Purchase Agreements, include Delivery Order Numbers also. For task/delivery orders submitted, each will be counted as one contract reference. Note that the Government generally will not consider performance on a newly awarded contract without a performance history (e.g. less than six months old) or on an effort that concluded more than three (3) years prior to the solicitation closing date.
- (g) Contract Type (specific type such as Fixed Price (FP), Cost Reimbursement (CR), Time & Materials (T&M), etc. In the case of Indefinite Delivery contracts, indicate specific type (Requirements, Definite Quantity, and Indefinite Quantity) and secondary contract type (FP, CR, T&M, etc).
- (h) Awarded price/cost.
- (i) Final or projected final price/cost.

- (j) Original delivery schedule, including dates of start and completion of work.
- (k) Final or projected final, delivery schedule, including dates of start and completion of work.
- (l) The offeror shall address its corporate experience in each proposed Government contract focusing particularly on size, scope, and complexity in providing like or similar services. Offerors are required to explain what aspects of the contracts are deemed relevant to the proposed effort, and to what aspects of the proposed effort they relate. This may include a discussion of efforts accomplished by the offeror to resolve problems encountered on prior contracts as well as past efforts to identify and manage program risk. Merely having problems does not automatically equate to an unfavorable rating, since the problems encountered may have been on a more complex program, or an offeror may have subsequently demonstrated the ability to overcome the problems encountered. The offeror is required to clearly demonstrate management actions employed in overcoming problems and the effects of those actions in terms of improvements achieved or problems rectified, which may allow the offeror to be considered a lower risk candidate. For example, submittal of quality performance indicators or other management indicators that clearly support that an offeror has overcome past problems is required.

#### L-7.5.2.2 Performance

Offerors shall provide a specific narrative explanation of each contract listed in Section 1 describing the objectives achieved and detailing how the effort is relevant to the requirements of this solicitation.

(a) For any contracts that did not/do not meet original schedule or technical performance requirements, provide a brief explanation of the reason(s) for the shortcomings and any corrective action(s) taken to avoid recurrence. The offerors shall list each time the delivery schedule was revised and provide an explanation of why the revision was necessary. All Requests for Deviation and Requests for Waiver shall be addressed with respect to causes and corrective actions. The offerors shall also provide a copy of any Cure Notices or Show Cause Letters received on each contract listed and a description of any corrective action implemented by the offeror or proposed subcontractor. The offerors shall indicate if any of the contracts listed were terminated and the type and reasons for the termination.

(b) For all contracts, the offeror shall provide data on all manufacturing warranty returns. Data shall delineate total number of warranty returns, number of Could Not Duplicate (CND), number of failures attributable to GFE component failures, and number and nature of failures attributable to the offeror's delivered product.

#### L-7.5.2.3 Past Performance Questionnaire

The offeror shall submit Past Performance information as required in this paragraph and section. Additionally, the offeror shall submit a past performance letter and questionnaire (provided as attachments to Section J) to the POC(s) for each Government contract identified by the offeror as relevant to the scope of this effort. Each letter and questionnaire must be submitted to the respective POC no later than fifteen (15) calendar days prior to proposal due date. Completed questionnaires (both Sections I and II) must be received by the Contract Specialist (Fred Boehne [fred.j.boehne@usmc.mil](mailto:fred.j.boehne@usmc.mil)) not later than 7 calendar days after the proposal due date in order to be

considered in the evaluation. Once the questionnaires are completed by the POCs, the information contained therein shall be considered sensitive per the FAR 3.104.

#### L-7.5.3 Verification

Offerors are reminded that both independently obtained data and data provided in the proposals may be used to evaluate offeror's past performance. All data provided on Government contracts is subject to verification. A significant achievement, problem, or lack of relevant data in any area of evaluation can become an important consideration in the source selection process.

#### L-7.5.4 Terminated Contracts/subcontracts

Information must be provided for any and all contracts and subcontracts that have been terminated for default in whole or in part, for any reason, during the past three years. This shall include those currently in the process of termination. This requirement also applies to any proposed subcontractor. Information must also be provided for any and all contracts and subcontracts that resulted in the appearance of the offeror on the Defense Logistics Agency's Contractor Alert List, a Debarred List, or any other similar government problem listings, during the past three years. This requirement also applies to any proposed subcontractor or team member.

#### L-7.5.5 Lack of Past Performance

Offeror's lacking relevant past performance history shall receive a neutral evaluation for past performance.

## Section M - Evaluation Factors for Award

### SECTION M

#### M.1 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE. (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this address: <http://farsite.hill.af.mil/>

#### M.2 GENERAL

This section contains the specific evaluation factors for award. Pursuant to FAR 52.215-1, the Government intends to award a contract to that responsible offeror whose proposal represents the BEST VALUE to the Government, price and other factors considered. "Other factors" will include all those evaluation areas and factors set forth in Section M.3 below. In accordance with FAR 15.304(e) the evaluation areas other than cost or price, when combined, are significantly more important than cost or price. Accordingly, award may be made to other than the lowest priced offeror.

The Government intends to evaluate proposals and award a contract without discussions with offerors. Therefore, each initial offer should contain the offeror's best terms from a technical and price standpoint. The Government, however, reserves the right to conduct discussions and request proposal revisions, if necessary. If a competitive range is established, the Government may limit the number of proposals to the greatest number which will permit an efficient competition among the most highly rated proposals.

Offerors must propose prices for all items and quantities under each item listed in Section B, Supplies or Services and Prices/Costs, of this solicitation. The Government may evaluate as deficient any offer that does not fully comply with all requirements set forth in the RFP.

The Government intends to make a single award to the offeror whose offer is considered to represent the best value to the Government, price and other factors considered. Therefore, offerors proposing less than the entire effort specified herein may be determined to be unacceptable.

#### M-3 EVALUATION FACTORS for AWARD

The Government's evaluation of proposals will be based on the Factors and Sub-Factors listed below and described in Section M, Evaluation Factors for Award, of the solicitation.

- Factor 1: Technical
  - Sub-Factor A: Software Development Experience with DVTE JSAF, NTB JSAF, and VBS2.
  - Sub-Factor B: System and Software Engineering Processes
  - Sub-Factor C: Task Order Technical Approach
- Factor 2: Management & Schedule
- Factor 3: Price/Cost
- Factor 4: Past Performance

The Factors are listed in descending order of importance. The Technical Factor is more important than the Management and Schedule Factor. The Management and Schedule Factor is more important than Price/Cost Factor. The Price/Cost Factor is more important than the Past Performance Factor. Within the Technical Factor, Sub-Factor A is more important than Sub-Factor B. Sub-Factor B is more important than Sub-Factor C.

All evaluation factors other than price, when combined, are more important than price.

In arriving at a best value decision, the Government may give positive consideration for performance in excess of threshold requirements, up to the objective requirements. The Government may give further positive consideration for performance in excess of the objective requirement.

#### M-3.1 Factor 1 - Technical Shall Be Evaluated As Follows:

The Government will evaluate the Offeror's technical proposal on the quality of the offeror's technical solution for meeting the Government's requirement. The Offeror's approach to the requirements will be evaluated based on how well its proposal conclusively demonstrates an understanding of the scope of activities, and provides a realistic approach that will be successful and satisfy the requirements. For each Sub Factor within the Technical Factor a proposal rating and proposal risk rating will be assigned.

The proposal rating will depict how well the proposed approach would meet solicitation requirements. An unacceptable or marginal rating at any level of indentation (Sub Factor) can result in an Unacceptable or Marginal rating at the highest rated level (Factor). For example, in assigning the final rating for a given Factor, which contains multiple Sub Factors to be evaluated, the Factor can be rated Unacceptable or Marginal if any of the Sub Factors are scored Unacceptable or Marginal (with deficiencies). The Government will not average or balance a Marginal or Unacceptable Sub Factor with higher rated Sub Factors but will use a subjective analysis based on factual data to determine the Factor rating.

The proposal risk will address potential impacts of the proposed processes, methodologies, approaches and concepts on performance, schedule, and price in achieving solicitation requirements. Proposal Risk will be evaluated at the Area and factor level and will be of approximately equal weight to the adjectival ratings. The Proposal Risk evaluation focuses on the weaknesses associated with an offeror's proposed approach and includes an assessment of the potential for disruption of schedule, increased cost, degradation of performance, and the need

for increased Government oversight, as well as the likelihood of unsuccessful contract performance.

#### M-3.1.1 Technical Sub-Factor A – Software Development Experience with DVTE JSAF, NTB JSAF, and VBS2.

M-3.1.1.1 Software Engineering - The Government will evaluate the Offeror's breadth and depth of software design, development, integration, testing, and maintenance experience in the past five years with DVTE JSAF, NTB JSAF, and VBS2 and the resulting improvements and enhancements made to these products based on this experience.

M-3.1.1.2 Key Technical Personnel - The Government will evaluate the Offeror's System/Software Architect, Lead System/Software Engineer, Lead Integration Engineer, and Lead Test Engineer based upon their software development lifecycle experience with JSAF and VBS2. The Government will evaluate the Offeror's ISSE's experience in successfully achieving certification and accreditation of similar software intensive-systems in accordance with the DIACAP.

M-3.1.1.3 Interoperability - The Government will evaluate the Offeror's background/experience in developing and deploying proven interoperable solutions for VBS2 and DVTE JSAF and the training impact these solutions provided. The Government will evaluate how the Offeror's technical approach to maintaining and improving DVTE interoperability ensures consistent data correlation between systems, configuration management of external interfaces, and seamless interoperability with new version releases of external systems.

#### M-3.1.2 Technical Sub-Factor 1B – System and Software Engineering Processes

M-3.1.2.1 Software Development Plan - The Government will evaluate the Offeror's proposed software development approach to ensure it is appropriate for the system to be developed/maintained and meets standard levels of completeness and process quality. For this evaluation, the Government will rely primarily on the draft SDP submitted with this proposal.

M-3.1.2.2 Lifecycle Metrics - The Government will evaluate the Offeror's technical proposal on the identification and implementation of software metrics throughout the software development lifecycle and the use of software metrics in managing the software development effort. The Government will evaluate the Offeror's rationale for the data collected, frequency of data collection and metrics availability, actions taken based upon the software metrics, and how information derived from the software metrics results in improved software quality.

M-3.1.2.3 Software Development Processes - The Government will evaluate the Offeror's experience in implementing software development processes (as specified in the SDP submitted in the Offeror's proposal) that are equivalent and greater to those articulated by the CMMI capability or maturity level 3. The results of any standard model-based process maturity appraisals performed within 36 months prior to proposal submission and the number of proposed staff experienced in using these processes will be part of the evaluation criteria.

M-3.1.2.4 Information Assurance - The Government will evaluate the Offeror's plan to comply with the Information Assurance Controls described DoDI 8500.2 for a Mission Assurance Category III and Classification Level Sensitive System in order to achieve and/or maintain DVTE certification and accreditation

### M-3.1.3 Technical Sub-Factor C – Task Order Technical Approach

M-3.1.3.1 The Government will evaluate the Offeror's technical approach for the sample task order to ensure the proposed approach satisfies the requirements of the task order.

M-3.1.3.2 The Government will evaluate the technical risks identified and mitigation approach proposed by the Offeror to assess the Offeror's understanding of the technical complexities, challenges, and potential consequences associated with satisfying the requirements of this task order.

### M-3.2 Factor 2 Management and Schedule Shall Be Evaluated As Follows:

#### M-3.2.1 Management & Schedule.

The Government will evaluate the Offeror's Management and Schedule proposal on the quality of the offeror's xxx solution for meeting the Governments requirement. The Offeror's approach to the requirements will be evaluated based on how well its proposal conclusively demonstrates an understanding of the scope of activities, and provides a realistic approach that will be successful and satisfy the requirements.

M-3.2.1.1 Business Strategy - The Government will evaluate the proposal for an effective business strategy (e.g., management) for the program, inclusive of control and oversight of vendors/parts suppliers; strategic relationships and teaming arrangements; price controls; and quality management.

M-3.2.1.2 Approach To Work Requirements - The Offeror's approach to the work requirements will be evaluated based on how well the proposal conclusively demonstrates an understanding of the scope of activities, as well as provide a realistic approach that will be successful and satisfy the RFP requirements. Illustrative examples of the processes to be applied to define and manage key system attributes, incorporate a comprehensive testing program, and manage the overall technical quality of products shall be demonstrated.

M-3.2.1.3 Resources And Resource Allocation - The proposal will be evaluated based on how well the Offeror provides adequate resources (in-house and sub-contractor "if applicable" expertise and experience) and resource allocation.

M-3.2.1.4 Management of Work Requirements for All Phases of the Program - The proposal will be evaluated based on the Offerors ability to demonstrate a clear and concise understanding of, and approach to the management of the work requirements for all phases of the program. This includes the proposed management of the critical activities and personnel associated with PDSS, design/modification of software, integration, testing, and installation activities.

M-3.2.1.5 Key Personnel - The Offeror's key personnel shall be evaluated as to their duties as well as relevant experience, education, and accomplishments.

M-3.2.1.6 Risk Mitigation, Quality Assurance And Configuration Management - The Government will evaluate the offerors processes used for risk mitigation, quality assurance and configuration management.

M-3.2.1.7 Work Break-Down Structure (WBS) - The Government will evaluated the offerors WBS as it relates to this SOW and taskings to determine the offeror has a clear understanding of the described efforts

M-3.2.2       Schedule.

M-3.2.2.1 Integrated Master Schedule (IMS) - The Government will evaluate the proposal for an integrated master schedule that clearly describes and supports the SOW tasks, critical events, meetings, reviews, deliveries, and satisfies contract requirements. The Offeror's proposed schedule will be evaluated for ability to meet the Government's required delivery schedule.

M-3.2.2.2 Integration of the Sample Task Order into the IMS - The Government will evaluate the integration of the sample task order into the IMS. The proposed schedule will be evaluated for the offeror's ability to identify critical paths and dependencies and identification of all key tasks, milestones and deliverables associated with this task order.

M.3.3 Factor 3 – Cost/Price shall be evaluated as follows:

M-3.3.1       Cost/Price

Cost/Price proposals shall be evaluated for reasonableness and completeness to determine if it is consistent with the Offeror's technical and management approach. The Offeror's cost proposal must demonstrate and clearly describe an effective and efficient approach to estimating the cost of the contract. The evaluated price shall consist of the total of all CLINS. The PDSS CLIN shall include all management costs, including all associated costs with the management of the Development Support CLIN. Each labor category shall be priced per hour for the Development Support CLIN (based on the sample task order). As part of this evaluation, the Government may consider DCAA audit information and other information the Government deems relevant. The financial stability and company infrastructure shall be evaluated to determine an associated risk.

The price proposal shall be provided in the attached Costing Format Excel spreadsheet which includes cost and price data following FAR 15.408, Table 15-2. The spreadsheet is organized with a separate page or breakdown for each CLIN. As data for each CLIN is entered on each tabbed page the summary sheet auto fills. Overhead, G&A, and profit, the DOL labor categories for each Non-EXEMPT (hourly) laborer, burdened and unburdened labor rates, materials, equipment, travel and other direct costs need to be broken down, and calculations shown. Please also provide copies of any subcontractor quotes, and paystubs or certified payroll showing a clear hourly wage for each EXEMPT (salaried) laborer. The DCAA website offers guidance for this format at [www.dcaa.mil](http://www.dcaa.mil), select information for contractors at the bottom of the menu on the left and go to chapter 3 on price proposals.

#### M-3.4 Factor 4– Past Performance

##### M-3.4.1 Past Performance Evaluation

The Government will conduct a past performance evaluation based upon how relevant a recent effort has been accomplished by the offeror in an effort t and how well the contractor performed on the contracts.

The criteria to establish what is recent and relevant are similarity of service/support, complexity, dollar value; contract type and degree of subcontract/teaming. The Government will rate Past Performance as “relevant and not relevant” only.

The Government will evaluate each Offeror on its past performance on contracts or subcontracts currently ongoing or completed within the last three (3) years for similar products or services. The Government will focus on information that demonstrates quality of performance relative to size and complexity of the procurement under consideration. The Government may contact references, other than those identified by the Offeror. The Government cautions Offerors that the Government, in conducting its evaluation, may use data provided by the Offeror as well as data obtained from other sources. The Government reminds Offerors that while the Government may elect to consider data obtained from other sources, the burden of proving acceptability rests with the Offerors.

The Government will base its evaluation of past performance on consideration of all relevant facts and circumstances. Offerors shall forward a copy of the Past Performance Questionnaire, (Included) to the cognizant Program Manager, Contracting Officer and Contract Specialist of the Government agency or commercial entity for each contract or subcontract. The Government will not consider any questionnaires submitted by other than the cognizant Government Agency or commercial entity. The evaluation will include demonstrated past performance in:

- Technical (Quality of Product)
- Product Performance
- Systems Engineering
- Software Engineering

- Logistic Support/Sustainment
- Product Assurance
- Schedule
- Cost Control
- Management/ Management Responsiveness
- Subcontract Management
- Personnel Retention/Recruitment
- Overall Customer Satisfaction ( Would the customer recommend you)

NOTE: In the case of an Offeror that does not have past relevant Government contract performance information or that information on past contract performance is not available, the Government will not evaluate the Offeror favorably or unfavorably on the past performance factor.

NOTICE TO OFFERORS: It is the responsibility of the Offeror to solicit, in a timely manner, the past performance information on the contracts listed by the Offeror in accordance with the specified format. The Government cautions Offerors that, in conducting its evaluation, the Government may use data provided by the Offeror as well as data obtained from other sources. The Government reminds Offerors that while the Government may elect to consider data obtained from other sources, the burden of proving acceptability rests with the Offerors.

## M-4 RATINGS ASSESSMENTS

### M-4.1 Adjectival Ratings.

**The Government will use the following adjectival ratings for the Technical, Management and Schedule Factors:**

EVALUATION RATINGS		
COLOR	RATING	DESCRIPTION
BLUE	Outstanding	Proposal meets requirements and indicates an exceptional approach and understanding of the requirements. The proposal contains multiple strengths and no deficiencies.
PURPLE	Good	Proposal meets requirements and indicates a thorough approach and understanding of the requirements. Proposal contains at least one strength and no deficiencies.
GREEN	Acceptable	Proposal meets requirements and indicates an adequate approach and understanding of the requirements. Proposal has no strengths or deficiencies.
YELLOW	Marginal	Proposal does not clearly meet requirements and has not demonstrated an adequate approach and understanding of the requirements.
RED	Unacceptable	Proposal does not meet requirements and contains one or more deficiencies and is un-awardable.

### M-4.2 Risk Ratings.

**The Government will use the following risk ratings for the Technical Factors:**

RISK RATINGS	
RATING	DESCRIPTION
LOW	Has little potential to cause disruption of schedule, increased cost or degradation of performance. Normal contractor effort and normal Government monitoring will likely be able to overcome any difficulties.
MODERATE	Can potentially cause disruption of schedule, increased cost or degradation of performance. Special contractor emphasis and close Government monitoring will likely be able to overcome difficulties.
HIGH	Is likely to cause significant disruption of schedule, increased cost or degradation of performance. Is unlikely to overcome any difficulties, even with special contractor emphasis and close Government monitoring.

### M-4.3 Cost Price Factor Evaluation Rating

#### **The Government will use the following rating to evaluate Cost/Price Factors:**

##### M-4.3.1 Reasonableness

The Government will evaluate the reasonableness of proposed cost/price by assessing the acceptability of the Offeror's methodology used in developing the cost/price. For cost to be reasonable, in its nature and amount, it should not exceed that which would be incurred by a prudent person in the conduct of a competitive business. This represents a compromise between the seller's and the buyer's opinion of what constitutes a fair price. Reasonableness takes into account the context of a given source selection, including current market conditions and other factors that affect the ability of an Offeror to perform the contract requirements. What is reasonable depends upon a variety of considerations and circumstances, including:

- Where it is the type of cost generally recognized as ordinary and necessary for the conduct of the Offeror's business or of the contract performance;
- Generally accepted sound business practices, Federal and State Laws and regulations, etc.; and
- Any significant deviations from the Offeror's established practices.

##### M-4.3.2 Completeness

Cost/price proposals shall be evaluated for completeness by assessing the responsiveness of the proposed cost/price by assessing the level of detail the Offeror provide cost data for and requirements in the SOW, and assessing the traceability of estimates. For the cost data to be complete, the Offeror, or their subcontractors or vendors, must provide all the data necessary to support the offer. The amount of data needed may vary depending on the requirements.

##### M-4.3.3 Total Evaluated Price -

## M-4.4 Past Performance Evaluation Rating:

**In conducting a performance confidence assessment, each offeror will be assigned one of the rating below:**

PERFORMANCE CONFIDENCE ASSESSMENT	
RATING	DESCRIPTION
Substantial Confidence	Based on the offerors recent/relevant performance record, the Government has a high expectation that the offeror will successfully perform the required effort.
Satisfactory Confidence	Based on the offerors recent/relevant performance record, the Government has a reasonable expectation that the offeror will successfully perform the required effort.
Limited Confidence	Based on the offerors recent/relevant performance record, the Government has a low expectation that the offeror will successfully perform the required effort.
No Confidence	Based on the offerors recent/relevant performance record, the Government has a no expectation that the offeror will successfully perform the required effort.
Unknown Confidence (Neutral)	No recent/relevant performance record is available or the offeror's performance record is so sparse that no meaningful confidence assessment rating can be reasonably assigned.

## M-5 Evaluation of Options

Except when it is determined in accordance with FAR 17.206(b) not to be in the Governments best interest, the Government will evaluate offers for award purposes for all options. Evaluation of options will not obligate the government to exercise the options(s).

**STATEMENT OF WORK  
FOR  
DEPLOYABLE VIRTUAL TRAINING SYSTEM (DVTE)  
POST DEPLOYMENT SOFTWARE SUPPORT (PDSS)  
AND  
SOFTWARE DEVELOPMENT EFFORTS**



**PROGRAM MANAGER, TRAINING SYSTEMS (PM TRASYS)  
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**VERSION: DRAFT 3  
DATED: 4 NOV 2011**

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## 1 Scope

This Statement of Work (SOW) will define the Combined Arms Network (CAN) Post Deployment Software Support (PDSS) effort required to support and maintain Deployable Virtual Training System (DVTE). A yearly update is anticipated to incorporate CAN PDSS changes and new development. Follow on CAN PDSS shall include any additional development incorporated in previous year's update. Additionally, this SOW will define the anticipated positions necessary to design, develop, integrate, test, install and maintain software development efforts for the CAN and other DVTE software as they become defined. The intent of the SOW is to support both CAN PDSS and additional/new software development. Performance specifications/Task Order SOWs will be developed to further define new software development/software changes. Development efforts will be defined by a Task Order SOWs or Specifications.

### 1.1 Background

DVTE is a laptop PC based simulation system capable of emulating organic and supporting Infantry Battalion weapons systems and training scenarios to facilitate T&R based training, currently being fielded at the Battalion level. Its portable configuration allows Marines to train when they otherwise could not; aboard ship, at remote reserve locations and deployed. The type of training able to be conducted with DVTE include language and culture training, platoon and squad level tactics, employment of supporting arms, and various Recognition of Combatants (ROC) packages. DVTE is part of a Commander's "training toolkit" contributing to the building block approach to standards based training focusing on achieving an improved level of combat readiness.

DVTE is an integration program that incorporates key proven technologies that leverage industry standards, best business practices and "Commercial Off-the-Shelf" (COTS) and "Government Off-the-Shelf" (GOTS) hardware and software to achieve a synthetic training environment. The overall DVTE acquisition strategy relies upon a sound incremental development approach to deliver a mature, synthetic training environment. The program strategy focuses on the development and integration of live, virtual, constructive modeling and simulation technologies into a system of systems that comprise the DVTE constructive simulation environment.

The Combat Developer/Program Manager/User community, through the use of a Configuration Control Board, will manage the evolution of DVTE through each 'version', to ensure user lessons learned are incorporated through changes/upgrades to the simulation and management tools are included in each subsequent software version.

### 1.2 Definitions

See Federal Acquisition Regulations Part 2.101 for words and terms that are frequently used in the FAR.

See Paragraph 3.4 of this SOW for a listing of the data rights clauses and provisions contained in the RFP. These clauses and provision contain definitions pertaining to data rights.

**2 Applicable Documents**

The following documents of the issue listed form a part of this SOW to the extent specified herein. The most recent revision of the referenced document at the time of contract shall be used unless otherwise specified. In the event of a conflict between documents referenced herein and the contents of this SOW, the contents of this SOW shall take first precedence. Nothing in this SOW supersedes applicable laws and regulations, unless a specific exemption has been obtained.

**2.1 Government Documents**

<b>Reference Number</b>	<b>Title</b>
MIL-PRF-29612B	Military Performance Standards, Department of Defense Training Acquisition Guidance
MIL-STD-130N	Identification Markings of U.S. Military Property, dated 17 Dec 2007
MIL-HDBK-881A	Work Breakdown Structures for Defense Material Items
DFAR – 252.227-7014	Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation
DFAR – 252.239-7000	Protection Against Compromising Emanations
DFAR – 251.239-7001	Information Assurance Contractor Training and Certification
DODI 8500.2	Information Assurance (IA) Implementation
FAR Part 2.101	See “Commercial Item”

**2.2 Non Government Documents**

<b>Reference Number</b>	<b>Title</b>
IEEE Std 12207 (ISO/IEC 12207)	Systems and Software Engineering – Software Life Cycle Processes
IEEE Std EIA 12207.1	Software Life Cycle Processes – Life Cycle Data
IEEE Std 1220	IEEE Standard for Application and Management of the Systems Engineering Process
IEEE Std 1516	IEEE Standard for Modeling and Simulation (M&S) High Level Architecture (HLA) – Framework and Rules
IEEE Std 1516.1	IEEE Standard for Modeling and Simulation (M&S) High Level Architecture (HLA) – Federate Interface Specification
IEEE Std 1516.2	IEEE Standard for Modeling and Simulation (M&S) High Level Architecture (HLA) – Object Model Template (OMT) Specification
IEEE Std 1730	IEEE Recommended Practice for Distributed Simulation Engineering and Execution Process (DSEEP)
IEEE Std 1278.1	IEEE Standard for Distributed Interactive Simulation –

	Application Protocols
IEEE Std 1278.1a	IEEE Standard for Distributed Interactive Simulation – Application Protocols (supplement for IEEE Std 1278.1)
IEEE Std 1278.2	IEEE Standard for Distributed Interactive Simulation – Communications Services and Profiles
IEEE Std 1278.3	IEEE Recommended Practice for Distributed Interactive Simulation – Exercise Management and Feedback
IEEE Std 1278.4	IEEE Recommended Practice for Distributed Interactive Simulation – Verification, Validation, and Accreditation

### 3 General Description

#### 3.1 New Software Development

##### 3.1.1 Combined Arms Network (CAN)

###### 3.1.1.1 General

CAN new software development requirements will be further defined in the task order with individual performance specifications, resulting in a specified deliverable. The new development will be incorporated into the planned yearly version release or patch and supported in subsequent years as PDSS. The contractor shall submit a resource estimated for each new software development task order SOW or specification provided. Resource estimates shall include development categories, development units and justification required to complete the task. The government reserves the right to negotiate these estimates and withdraw task orders should an agreed level of required effort not be reached. Each task order shall be supported by incorporation of tasking into all programmatic required documentation. Each task order may include more than one tasking. Task Order will be issued as needed by the Government to support the DVTE program.

###### 3.1.1.2 Version Release

The contractor shall develop version release media and documentation such that a third party is capable of installing the new version release. The contractor shall be available to provide installation assistance and troubleshooting after each new version has been released. The contractor shall ensure that all PDSS development is incorporated with DVTE software development that addresses new requirements. Each DVTE software version release will become the subsequent software baseline for PDSS.

#### 3.1.1.3 Backward Compatibility

The contractor shall provide the capability to allow scenarios created using the fielded version of DVTE can be ported and used in the new DVTE version release.

### 3.1.2 Other DVTE Software

#### 3.1.2.1 General

Non-CAN DVTE software development requirements will be further defined in the task order with individual performance specifications, resulting in a specified deliverable. Other software development requirements may include but are not limited to Virtual Battle Space 2 (VBS2) terrain development, VBS2 modeling and VBS2 scripting. The contractor shall submit a resource estimated for each new software development task order SOW or specification provided. Resource estimates shall include development categories, development units and justification required to complete the task. The government reserves the right to negotiate these estimates and withdraw task orders should an agreed level of required effort not be reached. Each task order shall be supported by incorporation of tasking into all programmatic required documentation. Each task order may include more than one tasking. Task Order will be issued as needed by the Government to support the DVTE program.

### 3.2 Post Deployment Software Support (PDSS) for the CAN

#### 3.2.1 General

The contractor shall support, integrate, test and document a new CAN version that incorporates all allocated software modifications and enhancements assigned to that version. All software modifications and enhancements shall be identified in a Version Description Document. The contractor shall deliver a new DVTE version release that incorporates the allocated software modifications and enhancements approximately every twelve months.

#### 3.2.2 Software Patches

The contractor shall develop and deliver software patches as required by the Government to address immediate and critical software bugs that cause the DVTE system failure or significantly impede or create negative training. The contractor shall develop and implement a process for designing, developing, integrating, testing and deploying software patches while maintaining the integrity off the DVTE software baseline.

### 3.3 Technical Proposal

The contractor's technical proposal, as negotiated and accepted by the Government, shall be incorporated by reference into the resultant contract. Information contained in the offer's proposal regarding organization, staffing, manning levels and experience/education qualifications of personnel that are to be utilized in performance of

this contract shall also be incorporated into the resultant contract. Any changes in these arrangements are to be submitted to the contracting officer in advance for approval.

### **3.4 Data Rights**

The contractor shall provide all data, including but not limited to source files, 2D and 3D imagery, video, audio, animations, design documentation, and other support documentation to the Government with "Unlimited Rights".

The following clauses and provisions are contained in the RFP:

52.227-14, Rights in Data—General - Clause

52.227-15, Representation of Limited Rights Data and Restricted Computer Software - Provision

52.227-19, Commercial Computer Software License - Clause

252.227-7013, Rights in Technical Data—Noncommercial Items - Clause

252.227-7014, Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation - Clause

252.227-7015, Technical Data--Commercial Items - Clause

252.227-7016, Rights in Bid or Proposal Information - Clause

252.227-7017, Identification and Assertion of Use, Release, or Disclosure Restrictions - Provision

252.227-7019, Validation of Asserted Restrictions--Computer Software - Clause

252.227-7025, Limitations on the Use or Disclosure of Government-Furnished Information Marked with Restrictive Legends - Clause

252.227-7028, Technical Data or Computer Software Previously Delivered to the Government - Provision

252.227-7030, Technical Data—Withholding of Payment - Clause

252.227-7037, Validation of Restrictive Markings on Technical Data - Clause

### **3.5 System Lifecycle Development**

#### **3.5.1 Integrated Product Team (IPT)**

The contractor shall define, document, implement and maintain an IPT structure for the duration of the work effort. The purpose of an IPT is to bring together all the functions that have a stake in the performance of a product or process and make decisions affecting the product or process. IPT membership shall be made up of multifunctional stakeholders working together with a product-oriented focus. Each IPT shall be empowered to make critical life cycle decisions regarding DVTE system development. IPTs shall be applied at various levels ranging from the overall structure of an organization to informal groups functioning across existing units. Each IPT shall prepare the required planning documents for the system element that it is assigned. The IPT shall be responsible for developing and satisfying the specifications and baselines associated with the element. The IPT shall complete the work outlined in tasking statements related to

the element, including the technical reviews. The Government reserves the right to create new IPTs to resolve potential problems. All IPTs shall consist of Government and contractor personnel.

### **3.5.2 Task Orders**

Task Orders will detail required functionality.

### **3.5.3 Requirements Analysis and Functional Allocation**

The contractor

### **3.5.4 System Requirements**

System requirements are derived per the DVTE system. The contractor shall develop detailed system level requirements and use cases from Task Orders. These requirements and use cases shall be incorporated into a System/Subsystem Specification Document that requires Government review and concurrence.

### **3.5.5 Software Requirements**

The software requirements are derived on a per component basis. Each set of software requirements are contained in a Software Requirement Specification (SRS) created to describe the software requirements for a capability for a specific component. The SRS is then peer reviewed and reviewed by the Government.

### **3.5.6 Contractor's Environment**

The contractor shall maintain and support a facility for development and PDSS for the DVTE system.

### **3.5.7 Conferences and Reviews**

The contractor shall conduct, attend and participate in conferences and reviews. The conferences and reviews shall be held at the contractor's and Government's facilities. The specific locations, dates, and duration of the conferences shall be as specified in the Integrated Master Schedule.

The contractor shall be prepared to explain the reasoning, assumptions, and methodologies in arriving at particular conclusions, recommendations, or alternatives in the accomplishment of the task orders. The contractor shall prepare drawings and other data as required to aid in the presentations. The contractor shall have key personnel and support available to conduct, attend and participate in conferences and reviews. The contractor shall make available facilities for Government only meetings during all conferences and reviews. Subcontractors shall attend conferences and reviews when required to address key elements.

### **3.5.8 Conference/Review Agenda and Minutes (CRAM)**

The contractor shall prepare the CRAM IAW CDRL C001 – DI-ADMN-81250A – Conference Minutes.

The contractor shall prepare the agenda, minutes and presentation materials for all conferences and reviews. Conferences and reviews shall be considered fulfilled when the following has occurred:

- 3.5.8.1 A formal meeting has been conducted and presented to the Government.
- 3.5.8.2 All action items requiring contractor responses have been completed.
- 3.5.8.3 The Government has accepted the CRAM.

### **3.5.9 Post Award Conference (PAC)**

The contractor shall conduct a PAC within 15 working days of the contract award and within 10 days upon the acceptance of each task order. The purpose of these conferences shall be to establish the framework of the contractor and Government interaction during the performance period. During the PAC the contractor shall present an Integrated Master Schedule (IMS) (Section XXXX) detailing all critical milestones and supporting events. The PAC shall include the presentation, data, and discussion of information relating to the following:

- 3.5.9.1 Introductions.
- 3.5.9.2 Task Order Overview.
- 3.5.9.3 A complete, accurate and realistic IMS.
- 3.5.9.4 Identification of all critical paths within the IMS.
- 3.5.9.5 CDRL delivery schedule and status.
- 3.5.9.6 Task Order Specific Systems Engineering Management Plan (SEMP).
- 3.5.9.7 Task Order Specific CM Plan.
- 3.5.9.8 Task Order Specific Software Development Plan (SDP)
- 3.5.9.9 Task Order Specific Quality Assurance and Management Plan (QAMP).
- 3.5.9.10 Task Order Specific Risk Management Plan (RMP)
- 3.5.9.11 Task Order life cycle model selection and rationale.
- 3.5.9.12 IPT structure, membership and charters (roles and responsibilities).
- 3.5.9.13 Action item reporting and status.
- 3.5.9.14 Long lead time item identification and status.
- 3.5.9.15 Updated team contact list (names, IPT memberships, phone numbers and email addresses).
- 3.5.9.16 Metrics collection processes, analysis and reporting.
- 3.5.9.17 Description of the contractor's approach to support certification and accreditation.

### **3.5.10 PAC Entry Criteria**

Entry criteria for the PAC shall consist of the following:

- 3.5.10.1 Government concurrence that the contractor submitted PAC agenda is complete and acceptable.
- 3.5.10.2 Government concurrence that the contractor has documented and started implementation of preliminary versions of the task order specific SEMP, CM Plan, SDP, QAMP and RMP.

### **3.5.11 PAC Exit Criteria**

Exit criteria for the PAC shall consist of the following:

- 3.5.11.1 Government concurrence that all required PAC topics have been satisfactorily presented, discussed and documented.
- 3.5.11.2 Government concurrence that the IMS is complete, accurate and realistic.
- 3.5.11.3 Government concurrence that the IPT structure, membership and charters are satisfactorily defined, documented and implemented.
- 3.5.11.4 Government concurrence that the contractor has documented and started implementation of the Task Order SEMP, CM Plan, SDP, QAMP and RMP.
- 3.5.11.5 Submittal and acceptance of the PAC minutes and presentation materials.
- 3.5.11.6 All action items have been assigned with suspense dates for closure.

### **3.5.12 System Requirement Review / System Functional Review (SRR/SFR)**

The contractor shall conduct a SRR/SFR. The SRR/SFR is a multi-disciplined product and process assessment to ensure that the system under review can proceed into preliminary design and that all system requirements and derived functional performance requirements are defined and consistent with cost, schedule, risk and other system constraints. The SRR/SFR shall assess the system functional requirements and ensure that all required system performance is fully decomposed and traceable to the functional baseline. At the SRR/SFR the contractor shall provide the following:

- 3.5.12.1 Identify and discuss resource availability to support the IMS.
- 3.5.12.2 Present and discuss a schedule critical path.
- 3.5.12.3 Provide current status versus critical path.
- 3.5.12.4 Describe the implementation of the Software Development Plan.
- 3.5.12.5 Provide a complete program organizational structure.
- 3.5.12.6 Identify relevant contractor Subject Matter Experts (SME) to be used during development and testing.
- 3.5.12.7 Show that all functional requirements are traceable to the system requirements.
- 3.5.12.8 Show that all explicit and derived requirements are quantified and documented.
- 3.5.12.9 Present the results of a comprehensive risk assessment for design, integration and test.
- 3.5.12.10 Address the following applicable functional areas:
  - 3.5.12.10.1 Human Systems Integration (HSI).
  - 3.5.12.10.2 Environment, Safety, and Occupational Health.
  - 3.5.12.10.3 Logistics.
  - 3.5.12.10.4 Technical Data.
  - 3.5.12.10.5 Interoperability.
  - 3.5.12.10.6 Information Assurance.
  - 3.5.12.10.7 Quality Management.
  - 3.5.12.10.8 Configuration Management.
  - 3.5.12.10.9 Testing.

### **3.5.13 SRR/SFR Entry Criteria**

Entry criteria for the SRR/SFR shall consist of the following:

- 3.5.13.1 Government concurrence that the PAC exit criteria has been met.
- 3.5.13.2 Delivery and acceptance of all the CDRL items scheduled to be delivered prior the SRR/SFR.
- 3.5.13.3 Government concurrence that the contractor submitted SRR/SFR agenda is complete and acceptable.
- 3.5.13.4 All PAC action items requiring contractor response have been completed and closed.
- 3.5.13.5 IMS is resourced at reasonable levels with realistic performance expectations.
- 3.5.13.6 Task Order technical risks identified.
- 3.5.13.7 Task Order execution risks identified.

### **3.5.14 SRR/SFR Exit Criteria**

Exit criteria for the SRR/SFR shall consist of Government determination of acceptable risk in all the SRR/SFR design elements and the following:

- 3.5.14.1 All SRR/SFR issues are captured in Requests for Action (RFA), properly adjudicated and assigned.
- 3.5.14.2 All SRR/SFR RFA are completed.
- 3.5.14.3 The required technical areas are represented at the review.
- 3.5.14.4 System Functional Baseline has been established to enable preliminary design to proceed under Configuration Management.
- 3.5.14.5 Processes and metrics are implemented.
- 3.5.14.6 Risks are known and are manageable for implementation of the functional requirements into a preliminary design.
- 3.5.14.7 Task Order schedule is executable within the anticipated cost and technical risks.
- 3.5.14.8 Task Order is properly staffed.

### **3.5.15 Critical Design Review (CDR)**

The contractor shall conduct a CDR. The purpose of the CDR is for the Government to formally review the activities and work products generated by the contractor during the performance of the critical design stage and to verify that the system is ready to proceed into the software coding, assembly and integration phase. The contractor shall present and describe the finalized task order system design, program status and address all design changes made since the SRR/SFR. The following items shall be topics of discussion and presentation during the CDR:

- 3.5.15.1 Task Order software design.
- 3.5.15.2 Current and planned C4I Systems.
- 3.5.15.3 3D visualization systems.
- 3.5.15.4 2D visualization systems.
- 3.5.15.5 Communication systems.
- 3.5.15.6 Internal Simulation Networks.
- 3.5.15.7 Interoperability design and implementation.
- 3.5.15.8 Use of developmental and commercial software and databases.
- 3.5.15.9 Software development.
- 3.5.15.10 Hardware and software interfaces.
- 3.5.15.11 System portability.
- 3.5.15.12 Information Assurance.
- 3.5.15.13 Logistics concerns.
- 3.5.15.14 Test and evaluation.
- 3.5.15.15 System Security.
- 3.5.15.16 Program risk areas, recommended solutions and analysis of alternatives.

### **3.5.16 CDR Entry Criteria**

Entry criteria for the CDR shall consist of the following:

- 3.5.16.1 SRR/SFR exit criteria are met.
- 3.5.16.2 Delivery of all the CDRL items scheduled to be delivered prior to CDR.
- 3.5.16.3 Availability of updated risk assessment and risk mitigation plans.
- 3.5.16.4 RAM requirements have been addressed in the design trade-off analyses.
- 3.5.16.5 Logistics analysis complete.
- 3.5.16.6 Integrated Master Schedule (IMS) shows a critical path through testing.
- 3.5.16.7 Submittal and acceptance of the CDR agenda.

### **3.5.17 CDR Exit Criteria**

Exit criteria and final acceptance of the CDR shall consist of the following:

- 3.5.17.1 Task Order IMS is executable within the anticipated cost and technical risks.
- 3.5.17.2 Risks mitigation plans are instantiated and manageable for implementation of the functional requirements into a final design.
- 3.5.17.3 Program is properly staffed.
- 3.5.17.4 Successful resolution and closure of all CDR action items.
- 3.5.17.5 CDR presentation materials are available.
- 3.5.17.6 Submittal and acceptance of the CDR minutes.

### **3.5.18 Test Readiness Review (TRR)**

The purpose of the TRR is to determine the systems readiness to proceed to the Government System Verification. The contractor shall provide the resources, facilities, equipment and personnel necessary to support the TRR. The TRR will include a review of the T&E program, all test results and presentation of the contractor certification of test readiness. The TRR shall include specific mission exercises to be conducted by the Government SMEs. The TRR mission exercises will be defined in the Government accepted TP as documented in the TEPP. The TRR mission exercises will be the primary method for determining system readiness. The TRR will be conducted by the Government after the following TRR entry criteria has been met:

- 3.5.18.1 Test Procedures.
- 3.5.18.2 Recorded RAM data.
- 3.5.18.3 Contractor test log.
- 3.5.18.4 Test discrepancy reporting process and applicable test discrepancy report form to be used during Government performed inspection and joint performed inspection.
- 3.5.18.5 Identification of software test tools to be used during Government performed inspection and joint performed inspection.
- 3.5.18.6 Summary of software problems status.
- 3.5.18.7 Distributed operations procedures.
- 3.5.18.8 Mission exercises.
- 3.5.18.9 Logistics Support.

### **3.5.19 TRR Entry Criteria**

The entry criteria for the TRR shall include the following:

- 3.5.19.1 All contractor tests have been performed and documented in the contractor test logs, TP execution entries and Allocated Baseline Trouble Reports (ATRs).
- 3.5.19.2 A documented execution of the Government accepted TP has been accomplished from start to finish without segregation of elements of individual tasks.
- 3.5.19.3 The appropriate documents and data are available prior to the start of the TRR.

### **3.5.20 TRR Exit Criteria**

The exit criteria for the TRR shall include the following:

- 3.5.20.1 The TEPP is available and has been established as the basis for testing.
- 3.5.20.2 Contractor test logs and records demonstrate that the TP has been properly and completely executed.
- 3.5.20.3 The contractor has provided a copy of the updated test results as recorded in the test documentation. Each completed step has been initialed. Each completed page has been signed and dated by the contractor's test director and QA representative.
- 3.5.20.4 The contractor has provided applicable personnel names and functions for team members involved in contractor testing.
- 3.5.20.5 CM processes have been followed and contractor generated CM logs are available for Government review.
- 3.5.20.6 The baseline configuration has been established.
- 3.5.20.7 System stability has been demonstrated as acceptable for Government testing. System crashes have been recorded denoting cause of each crash and recovery time measured from system crash to resuming testing.
- 3.5.20.8 The contractor has demonstrated that all test equipment required to execute the TP was utilized, functions properly and is available.
- 3.5.20.9 The contractor's QA representative has certified in writing that the contractor testing has been completed and the system is ready for Government testing.
- 3.5.20.10 TP has been established and accepted by the Government.
- 3.5.20.11 The contractor's test personnel are available to aid the Government when required in the execution of Government tests.
- 3.5.20.12 TP documentation is ready for use.
- 3.5.20.13 An ATR/PTR database has been setup for tracking deficiencies as necessary.

### **3.6 Software Engineering**

#### **3.6.1 Software Development Plan (SDP)**

The contractor shall develop an SDP IAW CDRL A005– DI-IPSC-81427A – Software Development Plan.

The contractor shall define a Software Development Plan (SDP) appropriate for the computer software effort to be performed under this solicitation. The contractor shall follow this SDP for all computer software to be developed or maintained under this effort.

This SDP shall be in accordance with the frame work established in IEEE 12207. The Government and IEEE 12207 do not prescribe a specific system or software life cycle model, development methodology, method, model or technique. The contractor is responsible for selecting a life cycle model for the DVTE software project and mapping the processes, activities, and tasks in this solicitation onto that model. The contractor is responsible for selecting and applying the software development methods and for

performing the activities and tasks suitable for the DVTE software project. The Marine Corps will determine if the contractor's SDP is viable.

The SDP shall define the proposed life cycle model and the processes used as a part of that model. The life cycle model is defined as "framework of processes and activities concerned with the life cycle that may be organized into stages, which also acts as a common reference for communication and understanding" (IEEE 12207 – 4.16 Life Cycle). The SDP shall describe the overall life cycle and shall include primary, supporting, and organizational processes based upon the work content of this solicitation. The SDP shall define the processes and activities to be performed as part of the tasks which support the activities, techniques and tools to be used to perform the tasks.

Information provided must include specific standards, methods, tools, actions, strategies, and responsibilities associated with development and qualification. After the SDP CDRL has been submitted and approved, the Marine Corps will use the SDP for monitoring progress and providing indications of emerging risks and problems. The SDP shall be placed under configuration control, with all changes subject to Marine Corps approval. Final delivery of the SDP shall take place as soon after award as feasible, but no later than commencement of software development activity. The SDP shall be reevaluated at least once every six months. This reevaluation shall be performed in accordance with the contractor's continuous process improvement defined within the SDP. The reevaluation shall be conducted to ensure that the applied processes are effective and documented.

### **3.6.2 Software Allocation**

The contractor shall categorize all software as application software and support software categories. Each category shall comprise a Software Configuration Item (SCI) and may further be subdivided into Software Units. The contractor shall implement an electronic system of software development folders for collecting all design and test information for each software unit developed.

### **3.6.3 Software Reviews**

The contractor shall conduct for all application and support SCIs, a Software Specification Review, a System Design Review, Software Preliminary Design Review, Software Critical Design Review and a Software Test Readiness Review.

### **3.6.4 Software Testing Program**

The contractor shall establish, implement, and conduct a Software Testing Program, including Software Item (SI) integration testing and Software Unit (SU) testing in accordance with the software testing practices outlined in IEEE 12207.

### **3.6.5 Source Code and Executable Software**

The contractor shall provide all applicable software source code and associated executable software developed in support of the DVTE software project.

### **3.6.6 Software IPT**

Upon contract award, the contractor and the Government shall establish a Software Integrated Product Team (IPT). This team shall consist of contractor and Government representatives. The Program Office Lead Systems Engineer will chair the Software IPT.

### **3.6.7 Software Requirements Specification (SRS)**

The contractor shall provide a SRS IAW CDRL A007 – DI-IPSC-81433A – Software Requirements Specification.

The SRS shall specify the requirements for the Software Configuration Item(s) (SCI) and the verification methods to be used to ensure that each requirement has been met.

### **3.6.8 Software Design Description (SDD)**

The contractor shall provide a SDD IAW CDRL A009– DI-IPSC-81435A – Software Design Description.

The SDD shall describe the design of an SCI, SCI-wide design decisions, the SCI architectural design, and the detailed design needed to implement the software.

### **3.6.9 Software Test Plan (STP)**

The contractor shall provide a STP IAW CDRL A010 – DI-IPSC-81438A – Software Test Plan.

The STP shall describe the plans for qualification testing of SCIs and software systems. It shall describe the software test environment to be used for the testing, the tests to be performed and provide the schedules for test activities.

### **3.6.10 Software Test Description (STD)**

The contractor shall provide a STD IAW CDRL A011 – DI-IPSC-81439A – Software Test Description.

The STD shall describe the test preparations, test cases and test procedures to be used to perform qualification testing of an SCI or software system or subsystem.

### **3.6.11 Software Test Report (STR)**

The contractor shall provide a STR IAW CDRL A012 – DI-IPSC-81440A – Software Test Report.

The STR is a record of the qualification testing performed on an SCI, a software system or subsystem, or other software-related item.

#### **3.6.12 Software Product Specification (SPS)**

The contractor shall provide a SPS IAW CDRL A013 – DI-IPSC-81441A – Software Product Specification.

The SPS shall contain or reference the executable software, source files, and software support information, including “as built” design information and compilation, build and modification procedures for an SCI.

#### **3.6.13 Software Version Description (SVD)**

The contractor shall provide a SVD IAW CDRL A014– DI-IPSC-81442A – Software Version Description.

The SVD shall identify and describe a software version consisting of one or more SCIs and shall be used to release, track and control software versions.

#### **3.6.14 Software User Manual (SUM)**

The contractor shall provide a SUM IAW CDRL E001– DI-IPSC-81443A – Software User Manual.

The SUM shall describe to a hands-on software user how to install and use an SCI, a group of related SCIs, or a software system or subsystem.

#### **3.6.15 System/Subsystem Specification (SSS)**

The contractor shall provide a SSS IAW CDRL A017 – DI-IPSC-81431A – System/Subsystem Specification.

The SSS specify the requirements for a system or subsystem and the verification methods to be used to ensure that each requirement has been met. The SSS shall be used as the basis for design and qualification testing of a system or subsystem.

#### **3.6.16 System/ Subsystem Design Description (SSDD)**

The contractor shall provide a SSDD IAW CDRL A001– DI-IPSC-81432A – System/Subsystem Design Description.

The SSDD shall describe the system or subsystem-wide design and the architectural design of a system or design of a system or subsystem.

### **3.6.17 Interface Requirements Specification (IRS)**

The contractor shall provide an IRS IAW CDR A008 – DI-IPSC-81434A – Interface Requirements Specification.

The IRS shall specify the requirements imposed on one or more systems, subsystems, Hardware Configuration Items (HWICs), SCIs, manual operations, or other system components to achieve one or more interfaces among these entities.

### **3.6.18 Interface Design Description (IDD)**

The contractor shall provide an IDD IAW CDRL A006 – DI-IPSC-81436A – Interface Design Description.

The IDD shall describe the interface characteristics of one or more systems, subsystems, Hardware Configuration Items (HWICs), SCIs, manual operations, or other system components.

### **3.6.19 Software Programmer's Guide (SPG)**

The contractor shall provide a SPG IAW CDRL A019 – DI-IPSC-81633 Software Programmer's Guide.

The SPG shall provide information to enable a programmer to understand component internal and external interfaces and dependencies associated with the DVTE software project.

## **3.7 Program Management**

### **3.7.1 General**

The contractor shall organize, coordinate, and control all program activities to ensure compliance with the contract requirements and the timely delivery of the required products and services. The contractor shall provide the necessary program management, engineering, materials, services, equipment, facilities, testing, technical, logistics, and clerical support for the efforts described in this SOW. The contractor shall monitor the progress of all work performed. The contractor shall explain the reasoning, assumptions, constraints, processes and methodologies used in developing particular conclusions and alternatives.

### **3.7.2 Contractor's Progress, Status and Management Report (CPSMR)**

The contractor shall provide a CPSMR IAW B002– DI-MGMT-80227 – Contractor's Progress, Status and Management Report.

The CPSMR indicates the progress of work and the status of the DVTE program and of the assigned tasks, reports costs, and informs of existing or potential problems.

### **3.7.3 Subcontractor Management**

The contractor shall be the prime contractor. The contractor shall be responsible for performance of requirements defined in the SOW and shall institute appropriate management actions relative to subcontractor performance. Requirements that are contractually specified shall apply to subcontractor performance. The prime contractor shall be accountable for compliance of subcontractors and is responsible for ensuring all deliverable products comply with the contract requirements.

### **3.7.4 Data Library Management**

The contractor shall establish a system for management of all data required under this contract. The contractor, in developing information that will be furnished to the Government, shall make the maximum use of existing data and provide maximum reuse of technical information. Any electronic databases or applications used to store, track, share, transmit or display information pertaining to this contract shall be web-based. Government use of any data management system shall not require installation of client software on Government computer systems. Specific data management functions shall include schedule control for deliverables, maintenance of deliverables, approval of deliverable format, distribution and delivery of data products. The system shall include facilities for storage of all data developed or utilized for this contract. The system shall provide equal access to the Government. The contractor shall ensure all data is available for Government review to ensure continuity of the system fabrication and supporting documentation. The Government reserves the right to review all data associated with and developed for the DVTE software project.

The contractor shall establish and maintain a backup library of all software and documentation in the contractor facility and off-site. A library is a product of the process of creating a backup of the history of the DVTE software project. The contractor shall supply the media to store the data backup library. There shall be one copy at each site for checkout purposes. The contractor shall provide physical protection for the media in accordance with security and sensitive handling procedures. Processes and procedures for data backup management shall be documented in the SDP.

### **3.7.5 Integrated Master Schedule (IMS)**

The contractor shall provide an IMS IAW CDRL B001 – DI-MGMT-81650 – Integrated Master Schedule.

The contractor shall develop, implement, control and maintain an IMS that presents the contractor's plans and schedules. The contractor shall document the planning and scheduling effort, related Government responsibilities and the integration for the efforts required for development and delivery of the DVTE software products. The contractor shall develop and document a tiered scheduling system based on the Contractor Work Breakdown Structure (CWBS) elements showing all program milestones and prerequisite events, conferences, reviews, data submittals, and deliveries. Contract deliverables and

subcontractor schedules shall be integrated into the contractor's IMS. The contractor shall construct the IMS to assure that these milestones are met.

### **3.7.6 Assignment of Responsibility and Authority**

The contractor shall identify the organizational elements responsible for the conduct of the activities defined in this SOW. Responsibilities shall be assigned and lines of authority defined for determining and controlling the resources necessary to satisfy each element of the SOW. The contractor shall notify the Government within 10 working days of any changes regarding authority, responsibility, or key personnel changes made by the contractor during the period of performance. The following billets shall be considered key personnel and the contractor shall appoint all persons filling these billets in writing:

- 3.7.6.1 Program Manager (PM) – The contractor shall designate a PM who shall possess sufficient corporate authority to manage, direct, execute and control all elements of the contract. The PM shall serve as the primary point of contact between the contractor and the Government. The PM shall be responsible for the coordination of all contractor activities related to the contract.
- 3.7.6.2 Program Systems/Software Architect – The contractor shall designate a Systems/Software Architect who shall possess sufficient authority to manage, direct, execute and control all system engineering elements of the contract.
- 3.7.6.3 Program Software Engineer – The contractor shall designate a Software Engineer who shall possess sufficient authority to manage, direct, execute and control all software engineering elements of the contract.
- 3.7.6.4 Program Lead Integration Engineer – The contractor shall designate a System/Software Engineer who shall possess sufficient authority to manage, direct, execute and control all systems/software integration elements of the contract.
- 3.7.6.5 Program Test Engineer – The contractor shall designate a Test Engineer who shall possess sufficient authority to manage, direct, execute and control all test elements of the contract.
- 3.7.6.6 Configuration Management Manager – The contractor shall designate a Configuration Management Manager who shall possess sufficient authority to manage, direct, execute and control all configuration management elements of the contract.
- 3.7.6.7 Quality Assurance Manager – The contractor shall designate a Quality Assurance Manager who shall possess sufficient authority to manage, direct, execute and control all quality elements of the contract.
- 3.7.6.8 Information Assurance Engineer – The contractor shall designate an Information Assurance Engineer who shall possess sufficient authority to manage, direct, execute and control all elements of Information Assurance.

*Note: For further information concerning the qualifications of such persons refer to Appendix XXXX.*

### **3.7.7 Contractor's Employees Identification**

The contractor shall meet all requirements pertaining to personnel identification. Contractor's employees shall be equipped with Identification Cards (ID cards), company name tags or company badges. This will distinguish and make contractor personnel easy to be identified by the Government personnel.

### **3.7.8 Security Clearances**

ALL CONTRACTOR PERSONNEL REQUIRING ACCESS TO CLASSIFIED INFORMATION AND ASSIGNED TO THIS PROGRAM SHALL POSSES A SECRET CLEARANCE. The prime contractor and all sub-contractors (though the prime contractor) shall certify in writing to the Government that personnel supporting this contract are "Qualified U.S. contractors" per DoD Directive 5220.22-M Chapter 2 Section 2. Qualified U.S. contractors are restricted to U.S. citizens, persons admitted lawfully into the United States for permanent residence, and are located in the United States. All personnel identified on the certification and/or supporting this contract shall be in compliance with Department of Defense, Department of the Navy, and Marine Corps Information and Personnel Security Policy to include completed background investigations (as required) prior to start. This contract shall include a DD-254 as an attachment. The contractor shall have a valid Secret Facility Clearance. The Government shall assist the contractor in gaining access to Government agencies and installations related to the systems in question.

### **3.7.9 Contractor's Risk Management Plan (CRMP)**

The contractor shall provide a CRMP IAW CDRL B004 – DI-MGMT-81808 – Contractor's Risk Management Plan.

The CRMP shall be used to monitor management, cost, schedule and performance of the contract efforts relative to the DVTE software project. This information will provide the Government with risk data for all risks associated with the DVTE software project.

### **3.7.10 Risk Management Status Report (RMSR)**

The contractor shall provide a RMSR IAW CDRL B005 – DI-MGMT-81809 – Risk Management Status Report.

The RMSR shall be used to document the contractor's progress for risk identification, risk mitigation planning, risk management plan implementation and risk tracking. This data will allow the Government to make informed decisions.

## **3.8 Systems Engineering**

### **3.8.1 General**

The contractor shall plan, implement and control an integrated technical effort in accordance with industry standards and best business practices to develop a total system

solution that is responsive to the requirements specified in this SOW. This shall be accomplished in conformance with IEEE 1220.

### **3.8.2 Systems Engineering Management Plan (SEMP)**

The contractor shall document their SEMF IAW CDRL A004 – DI-SESS-81785 – System Engineering Management Plan.

The contractor shall document, implement, control, and maintain a collection of technical plans, processes and schedules necessary to guide the project toward accomplishment of its objectives and proper conclusion.

### **3.8.3 Technical Reviews**

Technical Reviews shall be conducted in accordance with MCSCO 5400.5, Naval Systems Engineering Policy (Enclosure 2), the Naval Systems Engineering Technical Review Handbook (Enclosure 4) and Land Systems Specific SETR Guidance invoking the MARCORSYSCOM Technical Review Handbook (series).

### **3.8.4 Open Systems Design**

The contractor shall use an open systems approach as the preferred design strategy to:

- 3.8.4.1 Choose commercially supported specifications and standards for selected system interfaces (external, internal, functional and physical), products, practices and tools.
- 3.8.4.2 Build open system architectures as the primary foundation in developing the proposed system and its elements.
- 3.8.4.3 Open systems is a system design philosophy that uses widely accepted, industry approved, interface standards that will allow technological upgrades in system components to be inserted in the future. The contractor shall identify the means for ensuring conformance to open systems standards and profiles throughout the development process and provide evidence that the process being used to manage the open systems approach supports open system benefits. These benefits include portability, interoperability, technology insertion, vendor independence, reusability, scalability and commercial product based maintainability.

### **3.8.5 Reliability, Availability and Maintainability (RAM) Engineering**

The contractor shall establish and maintain active and effective RAM programs that meet the DVTE program objectives. The RAM programs shall ensure that the system equipment, including Commercial Items (CI) and Non-Developmental Items (NDI) meet the RAM requirements specified in the Performance Specification. The contractor shall include the RAM programs as topics of discussion during the scheduled program reviews.

### **3.8.6 Procedures and Controls**

The contractor shall maintain procedures and controls which ensure products obtained from suppliers, vendors and subcontractors meet RAM requirements. The contractor shall provide the Government with reasonable notice of any special RAM program review meetings scheduled with subcontractors so Government representatives may attend.

### **3.8.7 Quality Management System**

The contractor's quality management system shall ensure product conformation to contractual requirements. The contractor shall have implemented, documented and have previously demonstrated the ability to maintain the quality management system to be used for the DVTE system. The contractor shall make available all quality management documentation for the Government to review upon request.

### **3.8.8 Quality Management System (QMS) Requirements**

The contractor shall provide and maintain a QMS that satisfies program objectives and meets the requirements of ANSI/ASQ Q9001 or an equivalent QMS. ANSI/ASQ Q9000 and ANSI/ASQ Q9004 may be used as guidance. The QMS procedures, planning and all other documentation and data that comprise the QMS shall be made available for the Government to review. Existing quality documents that meet the requirements of the contract may continue to be used. The Government may perform the inspections, verification and evaluations necessary to ascertain conformance to requirements and the adequacy of the implementing procedures. Third-party certification of the contractor's QMS is not required. The contractor shall require subcontractors to maintain a QMS that achieves control of the quality of the services and supplies provided.

### **3.8.9 Human Systems Integration (HSI)**

The contractor shall apply HSI principles during design and integration activities. The contractor shall develop and execute an HSI engineering effort that ensures human factors engineering aspects and requirements have been incorporated into the layout, design and development of software having a graphical user interface. The Contractor shall conduct HSI activities including:

- 3.8.9.1 Define human and human/system tasks with performance, decision and information requirements for each task.
- 3.8.9.2 The knowledge, skills and abilities (KSA) required for each task.
- 3.8.9.3 Identify human-machine interfaces that support task performance, physical and cognitive workloads.
- 3.8.9.4 Conduct an analysis to determine manpower and tasking required for the operation, maintenance and use of the system over its lifecycle.
- 3.8.9.5 Conduct HSI evaluation activities to include usability testing during developmental test and evaluation efforts to assess human performance.
- 3.8.9.6 Perform HSI analysis activities that include identification and analysis of requirements for human performance, workload, survivability and safety.

### **3.8.10 Government Access**

The contractor shall provide the Government and Government support contractor access to its integrated development environment.

### **3.8.11 Design Approach Characteristics**

The following system architecture approach characteristics shall be utilized:

#### **3.8.11.1 Open Architecture**

The contractor shall develop and maintain an architecture that incorporates appropriate considerations for configurability, portability, maintainability, technology insertion, vendor independence, reusability, scalability, interoperability, upgradeability and long-term supportability as required by the Office of the Chief of Naval Operations (OPNAV N6/7) requirements letter (23 December 2005).

3.8.11.1.1 Ensure that external information exchange requirements are implemented in a standard and open manner as part of this effort. These actions shall include planning that identifies the contractor's specific approach to ensuring system and interface data is well defined, available to all programs and uses a standards-based tool for definition within the context of the Navy and Marine Corps upgrade programs. The contractor shall develop system upgrades that ensure that:

3.8.11.1.1.1 Data will be published to shared spaces for users to access except when limited by security, policy or regulations.

3.8.11.1.1.2 Data shall provide for interoperability with many-to-many exchanges of data, verified trust and integrity of users and applications.

3.8.11.1.1.3 Data shall be transmitted through well and openly defined interfaces.

3.8.11.1.2 The contractor shall ensure that their projects at the architectural and operation level continue to promote the use of an open architecture as well as adoption of Net Centric Enterprise Services (NCES) concepts. The contractor shall assist in the continuing pursuit of Net Centric/FORCENET compliance. The Contractor's plans must comply with appropriate and applicable standards. The contractor shall ensure that the program is

capable of interfacing with the Joint Environment and DoD Global Information Grid when developing applications that share data via external communications.

### 3.8.11.2 Modular Open Design

The contractor shall develop an architecture that is layered, modular and uses standards-based COTS/NDI hardware, operating systems and middleware. All shall utilize either nonproprietary or non-vendor unique key Application Programming Interfaces (API). The contractor's design approach shall be applied to all subsystems and components. As part of the open system management plan the contractor shall be required to describe how the proposed system architecture meets the use of nonproprietary or non-vendor unique COTS or reusable NDI components wherever practicable.

#### 3.8.11.2.1 Module Coupling

The contractor's design approach shall result in modules that have minimal dependencies on other modules (loose coupling), as evidenced by simple, well defined interfaces and by the absence of implicit data sharing. The purpose is to ensure that any changes to one module will not necessitate extensive changes to other modules and facilitate module replacement and system enhancement. The approach used to determine the level of coupling and design trade-off approach shall be described.

#### 3.8.11.2.2 Module Cohesion

The contractor's design shall result in modules that are characterized by the singular assignment of identifiable and discrete functionality (high cohesion). The purpose is to ensure that any changes to system behavioral requirements can be accomplished by changing a minimum number of modules within the system. The approach used to determine the level of cohesion and the design trade-off approach shall be described.

### 3.8.11.3 System Requirements Accountability

The contractor will be required to ensure that all system requirements are accounted for through a demonstrated ability to trace each requirement to one or more modules that consist of components that are self-contained elements with well defined open and published interfaces implemented using open standards.

### 3.8.11.4 Inter-component Dependencies

The contractor's design approach shall result in a layered system design maximizing software independence from the hardware. The design shall be optimized at the lowest component level to minimize inter-component dependencies. The layered design shall also isolate the application software layers from the infrastructure software (such as the operating system) to enhance portability and to facilitate technology refresh. The design shall be able to survive a change to the computing infrastructure with minimal or no changes required to the application logic. The interfaces between the layers shall be built to open standards or available to the Government with at least Government Purpose Rights. The system architecture shall minimize inter-component dependencies to allow components to be decoupled and reused across various Naval and Marine Corps programs and platforms.

### 3.8.11.5 Modular Open Systems Approach (MOSA)

The contractor shall describe the rationale for the modularization choices made to generate the design. The contractor's design approach shall produce a system that consists of hierarchical collections of software and hardware CIs (components). The components shall be of a size that supports competitive acquisition as well as reuse. The contractor's design approach shall emphasize the selection of components that are available commercially or within the DoD to avoid the need to redevelop products that already exist and that can be reused. The contractor's rationale must explicitly address any tradeoffs performed that compromise the modular and open nature of the system.

### 3.8.11.6 MOSA Objectives

The contractor shall specify the plans to use MOSA to enable the system to accomplish the following:

- 3.8.11.6.1 Adapt to evolving requirements and threats.
- 3.8.11.6.2 Accelerate transition from science and technology into deployment.
- 3.8.11.6.3 Facilitate systems reconfiguration and integration.
- 3.8.11.6.4 Reduce the development cycle time and total life cycle cost.
- 3.8.11.6.5 Maintain continued access to cutting edge technologies and products from multiple suppliers.
- 3.8.11.6.6 Mitigate risks associated with:
  - 3.8.11.6.6.1 Technology obsolescence.
  - 3.8.11.6.6.2 Being locked into proprietary or vendor-unique technology.
  - 3.8.11.6.6.3 Reliance on a single source of supply over the life of the system.

### 3.8.11.7 MOSA Support Plan

The contractor shall provide a plan for supporting the proposed Modular Open System Approach for integrating the systems under development internally and externally. The contractor shall provide a strategy for maintaining the currency of the technology (through COTS and other reusable NDI insertions, technology refresh strategies and other appropriate means) and creation of different processes necessary to support MOSA.

### 3.8.11.8 Design Information Documentation

The contractor shall document and model the system or component design information using industry standard formats. The contractor shall document and model what tools shall be utilized that are capable of exporting the model information in a standard format. The contractor shall identify the proposed standards and formats to be used. The contractor shall maintain the design information current with the as-built system.

### 3.8.11.9 Technology Insertion

The contractor's architectural approach shall support the rapid and affordable insertion and refreshment of technology through modular design, the use of open standards and open interfaces. The contractor shall define the functional partitioning and the physical modularity of the system to facilitate future replacement of specific subsystems and components without impacting other parts of the system and to encourage third-party vendor's participation.

#### 3.8.11.10 Life-Cycle Sustainability

The contractor should consider use of COTS/NDI and open standards to enhance the system's life-cycle sustainability by implementing Performance Based Logistics (PBL) arrangements to sustain the components throughout their life-cycle.

#### 3.8.11.11 Interface Design and Management

The contractor shall perform the following:

3.8.11.11.1 Clearly define and describe all component and system interfaces.

3.8.11.11.2 Define and document all subsystem and CI interfaces to provide full functional, logical and physical specifications.

3.8.11.11.3 Identify processes for specifying the lowest level that the contractor intends to control and define interfaces by proprietary or vendor-unique standards. Identify the impacts of these interfaces upon the proposed logistics approach.

3.8.11.11.4 Identify the interface and data exchange standards between the component, module or system and the interconnectivity or underlying information exchange medium.

3.8.11.11.5 Consider using these interfaces to support an overall information assurance strategy that implements Information Assurance (IA) processes in accordance with DoD Instruction 8500.2 (February 6, 2003)

3.8.11.11.6 Select external interfaces from existing open or Government standards with an emphasis on enterprise-level interoperability. The contractor shall describe how its selection of interfaces will maximize the ability of the system to easily accommodate technology insertion and facilitate the insertion of alternatives or reusable modular system elements.

3.8.11.11.7 Describe the extent that the change or configuration management process proposed will use "community of interest" teams in an integrated team approach to identify how individual changes impact the system's internal or external interfaces and information exchange standards.

#### 3.8.11.12 Treatment of Proprietary or Vendor-Unique Elements

The contractor shall explain the use of proprietary, vendor-unique or closed components and interfaces. The contractor shall define the process for identifying and justifying proprietary, vendor-unique or closed interfaces, code modules, hardware, firmware or software to be used. When interfaces, hardware, firmware, or modules that are proprietary or vendor-unique are required the contractor shall demonstrate to the Government that those proprietary elements do not preclude or hinder other component or module development from interfacing with or developing, replacing or upgrading open parts of the system.

#### 3.8.11.13 Open Business Practices

The contractor shall demonstrate that the modularity of the system design promotes the identification of multiple sources of supply and repair. The modularity shall support flexible business strategies that enhance subcontractor competition. The contractor shall conduct a market survey to identify candidate COTS, proprietary, Open Source Software

(OSS) and other reusable NDI components capable of achieving the performance requirements. The survey results shall be provided to support each major review. COTS and other reusable NDI selection criteria shall address the following factors:

- 3.8.11.13.1 Integrated Logistics Support requirements.
- 3.8.11.13.2 Safety.
- 3.8.11.13.3 Reliability consistent with the environment described in the System Specification.
- 3.8.11.13.4 Maintainability.
- 3.8.11.13.5 Subsystem performance trade-offs.
- 3.8.11.13.6 Open system architecture break out compatibility.
- 3.8.11.13.7 Cost.
- 3.8.11.13.8 Manufacturer's quality assurance provisions.
- 3.8.11.13.9 Market acceptability.
- 3.8.11.13.10 Obsolescence.
- 3.8.11.13.11 Adequacy of available technical and intellectual property data and re-procurement data rights on the product.
- 3.8.11.13.12 Merits of the software supported by the product.
- 3.8.11.13.13 Decisions and rationale leading to the selection of the specific COTS, NDI, proprietary or OSS products should be supported by appropriate analysis.

3.8.11.14 Reuse of Pre-existing or Common Items

The contractor shall reuse pre-existing or common items unless a determination is made to not reuse. Exceptions to reuse of pre-existing items must be accompanied by justification such as cost, schedule, functional and non-functional performance. The general objective of these efforts shall be the development of common systems, common elements and common components that meet the performance requirements of the various U.S. Navy or Marine Corps platform missions where commonality offers the greatest technical and cost benefits.

3.8.11.15 Third Party Development

The contractor shall provide the Government information needed to support third-party development and delivery of competitive alternatives of designs for software, components and modules on an ongoing basis. The contractor shall provide a list of proprietary or vendor-unique elements.

3.8.11.16 Life Cycle Management and Open Systems

The contractor's architecture shall provide for insertion of COTS into the system. The contractor shall demonstrate that COTS, reusable NDI and other components are logistically supported throughout the life-cycle. The contractor shall describe and demonstrate the strategy for reducing product, system and associated supportability costs through insertion of COTS or NDI products. The contractor shall establish a process to logistically support COTS and NDI products. The contractor shall describe the availability of repair services and manpower required for life-cycle support. The contractor shall demonstrate the capability to ensure long term support for COTS and NDI

products. The contractor shall provide the proposed methodology for pass through of COTS warranties to the Government.

#### 3.8.11.17 Use of Standards

Standards that are not specified within this contract or that are modified must be submitted to the Government Program Manager for approval prior to use. The contractor shall use the following standards in descending order of importance:

- 3.8.11.17.1 Standards as specified within this contract
- 3.8.11.17.2 Commercial Standards
  - 3.8.11.17.2.1 Standards developed by international or national industry standards bodies that have been widely adopted by industry.
  - 3.8.11.17.2.2 Standards adopted by industry consensus-based standard bodies and widely adopted in the market place.

#### 3.8.12 Computer Software Product End Items (CSPEI)

The contractor shall provide a CSPEI IAW CDRL A020 – DI-MCCR-80700 – Computer Software Product End Item.

The contractor shall deliver CSPEI for Government review and inspection to assure milestones are met. CSPEI is a list of software and documentation that is purchased, acquired or developed to assure significant milestones are met during the lifecycle of the DVTE project.

#### 3.8.13 Configuration Management Process (CM)

The contractor shall maintain a CM process for the control of all hardware and software documentation, media and parts that comprise the DVTE system. EIA-649 and MIL-HDBK-61 may be used for guidance. The contractor's CM process shall consist of identification, control, status accounting and audits. Consideration for interfacing with other acquisition requirements such as design reviews, information assurance and other related disciplines shall be addressed. The contractor shall designate a CM representative to serve as a primary point of contact to the Government for all CM matters. The contractor's representative shall be responsible for any subcontractor's CM efforts. The contractor shall notify the Government of any changes at the contractor's facility that affect the contractor's established CM process.

#### 3.8.14 Configuration Control IPT

The contractor shall participate in a joint Government and contractor IPT to designate Configuration Items (CI) to be managed by the Government and those to be managed by the contractor. For the CIs that are identified for Government control the contractor shall provide form, fit, function and interface documentation. The contractor shall establish management practices for the CIs to be managed by the contractor.

### **3.8.15 Interface Control Working Group (ICWG)**

The contractor shall be a participant in the Interface Control Working Group (ICWG). This working group shall be established to monitor and respond to changes between the DVTE project and external system interfaces. The ICWG shall meet will meet to resolve any interface problems.

### **3.8.16 Integration of Command, Control, Communications, Computers & Intelligence (C4I)**

The contractor shall ensure that USMC C4I systems are integrated with user prioritized message threads that have Unit Reference Numbers (URN) used by the DVTE C4I components. The contractor shall ensure that designated C4I messages transmitted from USMC C4I systems correctly stimulate the appropriate DVTE components.

### **3.8.17 Baseline Management**

The contractor shall be responsible for maintaining the currency and accuracy of the established baseline to ensure form, fit, function and interface of the DVTE project. The contractor shall establish definitive processes, which identify how the baseline will be managed and maintained. These processes shall be defined in the contractor's configuration management plan and made available to the Government for review.

### **3.8.18 Product Baseline**

The contractor shall establish the product baseline by the successful completion and Government acceptance of the Government Verification Test or other documentation that describes all the necessary functional and physical characteristics of DVTE, to include all verifications required to demonstrate that DVTE meets all required performance parameters.

### **3.8.19 Functional Baseline**

The contractor

### **3.8.20 Testing and Verification**

#### **3.8.20.1 Test and Evaluation (T&E)**

The contractor shall plan, coordinate, establish and implement a comprehensive T&E program that shall be able to verify the DVTE system. The T&E program shall verify that the integration of all subsystems and equipment meet the technical and operational requirements.

#### **3.8.20.2 T&E Program Planning (TEPP)**

The contractor shall create a TEPP IAW CDRL A002 – DI-NDTI-81284 – Test and Evaluation Program Plan.

The contractor shall develop and document the structure and objectives of the DVTE T&E program. The contractor shall continuously reassess and refine the T&E program as system development, production and testing progresses. The contractor shall update the TEPP throughout the contract to reflect changes in T&E concepts, test responsibilities, mission, systems descriptions, ground rules, schedules, documentation and resource requirements. TEPP review shall be an agenda item at all scheduled requirements, design, progress and test readiness reviews.

#### 3.8.20.3 T&E Program Components

The T&E program shall consist of the following:

- 3.8.20.3.1 Formal Regression Tests.
- 3.8.20.3.2 In-process/developmental inspections.
- 3.8.20.3.3 Operational/Vignette Scenario Tests.
- 3.8.20.3.4 Test Readiness Review (TRR).
- 3.8.20.3.5 Conformance Inspections.
- 3.8.20.3.6 Functional Configuration Audit (FCA).
- 3.8.20.3.7 Government System Verification.
- 3.8.20.3.8 Government Acceptance.

#### 3.8.20.4 T&E Deficiency Reporting System

The contractor

#### 3.8.20.5 Responsibility for Tests

The contractor shall be responsible for the performance of all test requirements, unless specified in the SOW or Performance Specification. The Government reserves the right to perform tests and configuration audits that are deemed necessary to ensure that the components conform to the contract requirements.

#### 3.8.20.6 Inspection and Test Records

Inspections and test records shall indicate the nature of the observations, number of observations and type of deficiencies found. Data included in inspection and test records shall be complete and accurate. The data shall be used for trend analysis and to assess corrective action effectiveness.

#### 3.8.20.7 Pre-Modification and Post-Modification Inspections

The contractor shall be responsible for participating in all pre-modification and post-modification inspections, meetings and reviews.

#### 3.8.20.8 In-process Inspections

The Contractor shall perform in-process inspections that may be required to assure conformance to all requirements of the SOW and Performance Specification.

#### 3.8.20.9 Contractor Support for Government Testing

The contractor shall support Government test efforts by providing on-site personnel and in-house support. The contractor shall support each Government test by providing maintenance, training and technical support for the period of the test. Test support requirements will be tailored to the test being conducted.

3.8.20.10 Test Procedures (TP)

The contractor shall deliver a TP IAW CDRL A003 – DI-NDTI-80603A – Test Procedure.

The contractor shall develop and implement System Integration and Qualification Test (SIT) procedures to demonstrate the adequacy and suitability of the contractor's integration processes and procedures for achieving the performance inherent in the design. The results of the test shall demonstrate the techniques and processes employed do not degrade the design and meet all requirements in the Performance Specification. All test procedures shall be subject to review and approval by the Government.

3.8.20.11 Test Resources and Facilities

The contractor shall furnish the inspection and testing facilities, equipment and personnel required to ensure that the system meets the requirements of the SOW and Performance Specification. The inspection and testing facilities shall provide the environmental conditions required by the tests. The contractor shall ensure that all contractor personnel, test equipment, test facilities, supporting equipment, test and data logs for testing are available for the beginning and during all phases of testing.

3.8.20.12 Test Log

The contractor shall maintain a log of all subsystem and system tests conducted. Entries into the test log shall begin with the start of contractor/subcontractor engineering verification testing. The test log shall be maintained until the completion of the testing. The test log shall show (by date) all equipment adjustments, modifications, failures, removal, replacement and maintenance (scheduled/unscheduled). The log shall be made available to the Government upon request.

3.8.20.13 Changes After the Test

Modifications in design that are determined to be necessary as a result of testing shall be recorded in the contractor's test log. All tests run prior to such modifications shall be repeated unless the Government determines that such changes have not invalidated the related test data.

3.8.20.14 Government System Verification

Government system verification will commence upon notification that the TRR exit criteria has been met. Government System Verification will be conducted by the Government test team as defined in the TEPP. Government System Verification will consist of Government conducted tests to demonstrate compliance with the specified performance requirements. Government System Verification will be conducted in accordance with the Government accepted TP and other Government accepted plans as documented in the TEPP. The contractor shall provide the Government with a copy of the revised TP prior to the Government System Verification. The Government reserves the right to perform additional test deemed necessary to ensure compliance with the specified requirements. Testing will commence with the establishment of a software baseline resulting from a software cold start performed in accordance with the verification requirements of the Performance Specification. Deficiency correction verification and validation will be at the discretion of the Government test team. Hardware and software configuration item testing and design documentation verification and validation will be conducted as an integral part of Government System Verification.

Deficiencies found during these tests shall be corrected by the contractor and verified by the Government test team.

3.8.20.15 Government System Verification Entrance Criteria

The contractor

3.8.20.16 Government System Verification Exit Criteria

The exit criteria for Government System Verification shall include the following:

- 3.8.20.16.1 The software baseline configuration is ready for testing.
- 3.8.20.16.2 All TP have been executed and signed off.
- 3.8.20.16.3 SME resources and test equipment necessary for remaining DR correction and follow on testing have been identified by name.
- 3.8.20.16.4 A complete TP or acceptable regression test series representative of the complete TP (as determined by the Government) has been executed after the final DR is ready for retest. TPs may be reduced within acceptable regression testing guidelines as determined by the Government.
- 3.8.20.16.5 Updated test results have been recorded in the contractual test documentation. This will include the date and time of the final results.
- 3.8.20.16.6 Deficiencies have been documented, categorized (for severity) and traced to a final resolution (ATR/PTR sign off or corrective plan).
- 3.8.20.16.7 All deficiencies identified during Government System Verification testing that jeopardizes safety or prevents or adversely affects the accomplishment of an operation or mission essential system capability shall:
  - 3.8.20.16.7.1 Be corrected.
  - 3.8.20.16.7.2 Conduct regression testing.
  - 3.8.20.16.7.3 Have QA standards satisfied and achieved.
- 3.8.20.16.8 System stability has been demonstrated to be acceptable as determined by the Government.
- 3.8.20.16.9 Government System Verification has demonstrated that all test equipment needed to execute the complete TP has been used, functions properly and is available.
- 3.8.20.16.10 CM baseline (software and hardware) has been maintained throughout ATR/PTR correction. Any CM deficiencies identified are corrected.

**3.8.21 Information Assurance**

3.8.21.1 Information System Security Engineering (ISSE)

The contractor shall integrate ISSE activities into the overall systems engineering process to ensure IA certification and accreditation (C&A) of the system being developed (DODI 8500.2, enclosure 3, paragraph 4.4). The contractor shall address all DODI 8500.2

Information Assurance Controls (IACs) for a Mission Assurance Category Level 3 (MAC-III), Confidentiality Level (CL) Sensitive. The contractor shall derive system requirements based upon the IACs and provide traceability between the IACs and the derived requirements.

#### 3.8.21.2 DIACAP System Identification Profile (SIP) Updates

The contractor shall provide updates to the system's DIACAP SIP as required. Changes to or within the system's accreditation boundary require the DIACAP SIP to be updated.

#### 3.8.21.3 DIACAP Implementation Plan (DIP)

The contractor shall develop and maintain the DIP IAW CDRL A015 - DI-MISC-80508B – Technical Report Study/Services.

The DIP is a compilation of several documents that describe the overall system and the IACs. The DIP explains how the IACs will be implemented and tested. The DIP shall follow the guidance of the DON DIACAP Handbook (published 15 July 2008). The DIP contains the following system documents:

3.8.21.3.1 C&A plan.

3.8.21.3.2 IAC implementation plan.

3.8.21.3.3 Validation Plan.

3.8.21.3.4 Validation Report.

#### 3.8.21.4 Plan of Action and Milestones (POA&M)

The contractor shall develop and deliver an IT Security POA&M. The POA&M shall be used to identify tasks and corrective actions required to demonstrate that all assigned IACs have been implemented and are effective. The POA&M shall address the resources required to accomplish a corrective action task, any milestones in accomplishing the task and scheduled completion dates for the milestones. The POA&M shall follow the guidance of the DON DIACAP Handbook (published 15 July 2008).

#### 3.8.21.5 Support for Certification and Accreditation (C&A) Activities

The contractor shall execute the approved Validation Procedures and document the results in the Validation Report. The contractor shall provide ISSE support to Security Test and Evaluation (ST&E) events. The contractor shall provide ISSE support for Independent Verification and Validation (IV&V) activities required for the system C&A.

#### 3.8.21.6 Information Assurance Special Instructions

COTS IA devices and IA enabled devices will be procured as described in DODI 8500.2 and NSTISSP 11. COTS products must be evaluated and validated in accordance with the International Common Criteria for Information Technology Security Evaluation or the National Institute of Standards and Technology (NIST) Federal Information Processing Standard (FIPS) 140-2. Commercial wireless devices, services and technologies shall comply with DODD 8100.2. Mobile Code implemented to satisfy the capabilities required must comply with DOD Mobile Code Policy.

### **3.8.22 Installation Method and Media**

The contractor shall be responsible for preparing software loading method and media for a 3<sup>rd</sup> party installation. The installation method shall offer an attended installation mode and an automatic silent/unattended installation mode. This shall include pre and post-operational readiness checks and other functions necessary to verify the system is in full operational capability.

### **3.8.23 Safety Assessment Report (SAR)**

The contractor shall prepare a SAR IAW CDRL A021 – DI-SAFT-80102B – Safety Assessment Report.

The SAR shall be a comprehensive evaluation of the safety risks being assumed prior to test or operation of the system. The SAR shall identify all safety features of the system, design and procedural hazards that may be present in the system being acquired. The SAR shall contain specific procedural controls and precautions that should be followed.

### **3.8.24 System Safety Program**

The contractor shall establish and maintain an active and effective system safety program (SSP) that meets the program objectives and ensures that the system meets the safety requirements specified in the Performance Specification. The SSP shall identify, document, analyze and resolve safety hazards to both personnel and equipment. The contractor shall eliminate or reduce the associated risk to a level acceptable to the Government. The contractor shall include system safety as a topic of discussion during the scheduled program reviews. Safety requirements shall be included in the instructor/operator training, operation and maintenance manuals. System safety requirements shall be added and updated in the technical documentation.

### **3.9 Government Furnished Equipment (GFE), Government Furnished Materials (GFM) and Government Furnished Information (GFI).**

#### **3.9.1 General**

The contractor shall be responsible for provision and maintenance of all GFE and GFM. The Government does not warrant that items furnished are all the supporting materials required to fulfill all of the contractual requirements. The Government does not warrant the condition of the items supplied under the contract. The contractor is responsible for providing all supporting materials necessary to successfully perform under the terms and conditions of the contract.

#### **3.9.2 Control of GFE and GFM**

The contractor's QMS shall comply with the following procedures to control GFE and GFM:

- 3.9.2.1 Examination upon receipt to detect damage in transit.
- 3.9.2.2 Inspection for completeness and proper type.
- 3.9.2.3 Precautions and periodic inspections to assure adequate storage conditions.
- 3.9.2.4 Guard against damage from handling and deterioration during storage.
- 3.9.2.5 Identification and protection from improper use or disposition.
- 3.9.2.6 Verification of quantity.

#### **3.9.3 Equipment Inventory Record (EIR)**

The contractor shall provide an EIR IAW CDRL D001 – DI-ILSS-81251 – Equipment Inventory Record.

The EIR shall ascertain the existence and condition of assets against the initial baseline inventory established at the beginning of the contract and any authorized changes made during the term of the contract.

#### **3.9.4 Transition of GFE, GFM and GFI**

Within ten business days of transitioning GFE or GFM the contractor shall complete an EIR for all GFE and GFM under the custody of the contractor. During any transition period the contractor shall provide reasonable and customary support in effecting a smooth transition. This shall include transition times of start up, to a successor contractor (even if the contractor is the successor contractor) and expiration of the contract. The contractor shall work with the successor contractor to transition GFE and GFM without harm to the successor contractor's site. The contractor shall observe the performance of all tasks being performed by the successor contractor without interfering throughout the entire phase.

**3.9.5 GFE, GFM and GFI Responsibility and Liability**

The contractor shall be responsible for all GFE and GFM in its possession. The contractor shall ensure that all GFE and GFM received or issued shall be properly identified. The Government will issue custody receipts or similar documents to assign responsibility for GFE and GFM. The contractor shall be liable for all missing assets as well as assets not returned in a serviceable condition beyond normal wear and tear as determined by the Government.

**3.9.6 GFE and GFM Repair**

In the event that equipment deficiencies are found during the physical inventory and the repairs are deficient at the beginning of the CSD, the contractor and successor contractor shall negotiate a settlement for the repair or replacement of these deficiencies. The negotiations may include financial considerations. If the parties cannot reach an agreement on a settlement they must agree to binding arbitration by the PCO. The intent of these actions is to ensure that the successor contractor is prepared to assume full performance responsibilities at turnover for the system and all equipment.

**3.9.7 Government Furnished Equipment (GFE)**

The Government will provide the Contractor with a DVTE suite, Head Mounted Display (HMD) and associated peripherals. As technical refreshed are performed to DVTE suites, The Government will provide updates to the Contractor suites. The intent is that the Contractor will possess all laptop/equipment configurations currently deployed for development and testing purposes.

**3.9.8 Government Furnished Information (GFI)**

DVTE currently utilizes a Software Delivery System (SDS) to deploy the incremental software development and updates to DVTE suites. The Government will provide the Contractor with the latest SDS load for DVTE within 14 days after contract award and will then provide the contractor with all subsequent SDS releases during the contract period of performance. The software contained on the latest SDS load (1.4) is as follows:

<b>NAME</b>	<b>ORIGINAL VERSION</b>	<b>CURRENT VERSION</b>	<b>INTERIM VERSIONS</b>
dotnet	3	3	
java jdk	6u	6u	
java jre	6u	6u	
Adobe Acrobat Reader	8.1.1	8.1.1	
C2PC	10.1.0.238	10.1.0.238	
CAN	1.2.10	1.4.1	1.3.1, 1.4
CAN Videos	NA	1.3.1	
CAPT	v1.8.1	v1.8.1	
CCM	6.0	6.0	
CDR Executables	1.0	1.0	
Combat Hunter Video	1.0	1.0	

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Dashboard	3.0	3.0	
flash plugin	9.0.124.0	9.0.124.0	
FOPCSIM	v2.1.14	v2.1.14	
LogTDS	1.0	1.0	
MAGTF	v2.120	v2.120	
MAudio Transit	5.10.00.0055v2	5.10.00.0055v2	
Microsoft Excel Viewer	11.6412.6506	11.6412.6506	
Microsoft PowerPoint Viewer	11.0.6458.0	11.0.6458.0	
Microsoft Word Viewer	11.6506.6505	11.6506.6505	
powerdvd	7.0	7.0	
QuickTime	7.0	7.0	
ROCV Downlook 1stGen		9.3	9.4
ROCV Downlook 2ndGen		9.3	9.4
ROCV IED		2	2.3
ROCV SB	1	1	
ROCV Thermal	NA	10.0	
ROCV Visible		9.3	10.0
roxio	9.0 DE	9.0 DE	9.4,
Tacopsmc	v5	v5	
Tactical Demo Movie	1.0	1.0	
Tactical Indonesian	NA	FR9637MAR10	
Tactical Dari	LR6066PRE10	FR9432ARM12	F7167ARM101
Tactical French	F3214MAR103	FR9616MAR22	
Tactical Iraqi	F3212MAR402	FR9613MAR52	
Operational Pashto	NA	FR9643MAR12	
Tactical Pashto	F3202ARM10	NA	
VBS2	1.21.5638	1.40.47	1.30.60271, 1.32, 1.40
VBS2 Tool Kit	NA	1.30.5786	1.32, 1.40
VRX2 PC	2.12.0	2.12.0	
Windows Media Encoder	9.0	9.0	
m6300-audio	5.10.0.5515	5.10.0.5515	
29palms	4.0	4.0	
afghanistan	1.0	1.0	
fallujah	1.0	1.0	
oahu	1.0	1.0	
pta	1.0	1.0	
ActivePerl	5.8.4.810	NA	
SDS Client	NA	1.1.0	1.0.0

**3.9.9 Contractor Support Date (CSD) and Mobilization Period**

During the mobilization period the contractor shall be responsible for performing all tasks necessary to assume full responsibilities for all duties as described in this SOW and Performance Specification. The support facility shall be equipped and operational with all critical contractor personnel and developmental equipment by CSD.

Prior to CSD the contractor shall acquire personnel, conduct contractor personnel training and perform other essential tasks. The contractor shall perform an EIR of GFE, GFM and GFI. Transport of GFE, GFM and GFI from its current location to the contractor's developmental facility shall be the responsibility of the contractor. GFE, GFM and GFI shall become available to the contractor within ten days of the beginning of the mobilization period. The GFE, GFM and GFI shall become part of the Material Support Package as defined in this SOW. The GFE, GFM and GFI turnover of custodial responsibility shall be accomplished as near to the CSD as possible.

### **3.10 Warranty**

The contractor shall provide a warranty covering workmanship, materials, design and all essential performance characteristics that would affect the Performance Specification requirements. Unless negotiated by the contractor and agreed to by the Government, the warranty shall be for a period of 24 months commencing from the date of task order completion.

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**Appendix A – Acronyms**

AAIRS		After Action Intelligent Reporting System
AAO		Approve Acquisition Objective
AAR		After Action Review
AFATDS		Advanced Field Artillery Tactical Data System
API		Application Programming Interfaces
ATR		Allocated Trouble Report
C&A		Certification And Accreditation
C2PC		Command And Control Personal Computer
C4I		Command, Control, Communications, Computers And Intelligence
CaNDI		Commercial And Non-Developmental Item
CAPSETS		Capability Sets
CAST		Combined Arms Staff Trainer
CCB		Configuration Control Boards
CCSM		Contractor Controller Simulation Management
CDD		Capability Development Document
CDR		Critical Design Review
CDRL		Contract Data Requirements List
CI		Configuration Item
CL		Confidentiality Level
CM		Configuration Management
COC		Combat Operations Center
COTS		Commercial Off The Shelf
CSD		Contractor Support Date
CSPEI		Computer Software Product End Items
CWBS		Contractors Work Breakdown Schedule
DIACAP		DOD Information Assurance Certification And Accreditation Process
DIP		DIACAP Implementation Plan
DOD		Department Of Defense
DON		Department Of Navy
DOORS		Dynamic Object Oriented Requirements System
DVTE		Deployable Virtual Training Environment
ECP		Engineering Change Proposal
EMI/EMC		Electromagnetic Interference/Electromagnetic Compatibility
ESD		Electrostatic Discharge
ESD		Electrostatic Sensitive Device
EWS		Expeditionary Warfare School
FIPS		Federal Information Processing Standard
FTE		Full Time Equivalent
GFE		Government Furnished Equipment
GFI		Government Furnished Information
GFM		Government Furnished Materials
GFP		Government Furnished Property
GOTS		Government Off The Shelf
GPI		Government Performed Inspection
H SI		Human Systems Integration
I/O		Instructor/Operator

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IA		Information Assurance
IAC		Information Assurance Controls
IAW		In Accordance With
ICWG		Interface Control Working Group
IDD		Interface Design Description
ILS		Integrated Logistics Support
IMS		Integrated Master Schedule
IPD		Integrated Product Development
IPR		Initial Program Review
IPT		Integrated Project Teams
IRS		Interface Requirements Specification
ISK		Initial Support Kit
ISSE		Information System Security Engineering
IUID		Item Unique Identification
IV&V		Independent Validation And Verifications
JCIDS		Joint Capabilities Integration Development System
JPI		Joint Performed Inspection
KSA		Knowledge, Skills And Abilities
MAGTF		Marine Air Ground Task Force
MCS		Master Control Station
MCSC		Marine Corps Systems Command
MCTOG		Marine Corps Training And Operations Group
MDV		Marine Digital Voice
MEB		Marine Expeditionary Brigade
MROC		Marine Corps Requirements Oversight Council
MTSD		MAGTF Simulation Training Division
NCES		Net Centric Enterprise Services
NDI		Non-Developmental Items
NET		New Equipment Training
NIST		The National Institute Of Standards And Technology
O&M		Operations And Maintenance Manual
OPNAV		Office Of The Chief Of Naval Operations
OSJTF		Open Systems Joint Taskforce
OSS		Open Source Software
OTF		OneSAF Terrain Format
PAC		Post Award Conference
PBL		Performance-Based Logistics
PDSS		Post Deployment Software Support
PESHE		Programmatic Environment, Safety And Occupational Health Evaluation
PM		Program Manager
PM TRASYS		Program Manager Training Systems
POA&M		Plan of Action and Milestones
PTR		Problem Trouble Reports
QA		Quality Assurance
QAMP		Quality Assurance And Management Plan
QMS		Quality Management System
R&M		Reliability And Maintainability
RFD		Request For Deviation

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RMP		Risk Management Plan
ROC		Required Operation Capabilities
RTVM		Requirements Traceability Verification Matrix
SAR		Safety Assessment Report
SAT		Systems Approach To Training
SCI		Software Configuration Item
SDD		System Design Description
SDP		Software Development Plan
SEMP		Systems Engineering Management Plan
SFR		System Functional Review
SI		Software Item
SIP		System Identification Profile
SIP		Software Installation Plan
SIT		System Integration Test
SME		Subject Matter Expert
SOW		Statement Of Work
SPS		Software Product Specification
SRR		System Requirement Review
SRS		Software Requirements Specification
SSDD		System/Subsystem Design Description
SSET		Software Support Environment Tools
SSS		System/Subsystem Specification
ST&E		Security Test And Evaluation
STD		Software Test Description
STR		Software Test Report
SUM		Software User Manual
SVD		Software Version Description
T&E		Test And Evaluations

**Appendix B – Position Descriptions**

1. Program Manger
2. Software Systems Architect
3. Systems Engineer
4. Sr. Software Engineer
5. Software Engineer
6. Test Engineer
7. Information System Security Engineer
8. Logistician
9. Technical Writer
10. Subject Matter Expert (SME)

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### **Program Manager**

The PM works to ensure that activities are carried out in accordance with established specifications, schedules and budgets. The PM coordinates development functions in order to minimize delays, meets with program and government team members on a regular basis to review program status and plan future actions.

#### **Responsibilities include:**

1. Responsible for DVTE development and other support efforts from systems requirements analysis through fielded support.
2. Planning and scheduling DVTE goals, milestones and deliverables.
3. Creates strategies for contingency planning and risk mitigation.
4. Making sure that the execution of DVTE development efforts are carried out as much as on schedule.
5. Overseeing and directing the project engineering effort and managing conflicts within the different groups and sections.
6. Define requirements for project risks.
7. Possessing skills like organization, presentation and customer service skills.
8. Designing and maintaining project and technical documentation.
9. Provides Government Project Management with detailed information in which to make trade off decisions between quality, costs, resources, scope and time.
10. Managing all the changes and issues with the Government.

### **Experience**

Seven years experience managing complex engineering or technical problems in a senior project leadership role. Must be knowledgeable with simulations (including JSAF), Marine Corps operations and training and integration of dissimilar systems. Knowledge and experience with software development, systems engineering, business process engineering, customer relationship management, project management, technology procurement, contracting, financial management, change management, risk management and IT service management are considered necessary. Must have demonstrated ability to lead and manage 35-40 person organization as well as manage subcontractors and keeping them on task.

#### **Additional Desired Experience**

1. Experience – At least 3 years experience as a project/program manager of a simulation based project is desired.
2. Military Education – Minimum three years experience in military training and education.
3. Modeling and Simulation Experience – Minimum two years experience in DOD modeling and simulation events.

### **Education**

Bachelor's degree in management or a technical discipline such as computer science, systems or software engineering from an accredited college or university. Graduate-level degrees are preferred. Project Management Professional (PMP) certification is a highly desirable credential.

### **Proof of Security Clearance**

Must be eligible for at least a secret clearance.

### **System/Software Architect**

Working within an industry best-practice software development lifecycle process and system engineering process, the software engineer performs software requirements analysis, software design, code, unit test, integration and testing to satisfy DVTE requirements.

#### **Responsibilities**

1. Serve as technical lead of DVTE development team and provide technical leadership for all DVTE software development lifecycle activities.
2. Lead the planning, technical design and implementation of the DVTE system and software architecture.
3. Incorporate DVTE required operational capabilities into the technical architecture and designs.
4. Coordinate and conduct technical reviews during each major phase of the software development lifecycle.
5. Review all software lifecycle documentation to ensure accuracy and completeness.
6. Establish and enforce system/software best practices and processes in the development of DVTE.
7. Implement software metrics to manage software quality and performance and provide strategic recommendations based upon interpretation of the metrics.
8. Lead the evaluation of COTS/GOTS software products for potential integration into DVTE and provide recommendations to the government project team.
9. Lead and conduct feasibility evaluations and trade off analysis to determine impact to DVTE architecture.
10. Establish and maintain a comprehensive security architecture for DVTE in compliance with DOD Information Assurance standards.

#### **Required Experience**

1. Fifteen or more years of software engineering experience working on simulation based training systems.
2. Ten or more years serving as a software engineering team lead.
3. Five or more years serving as system/software architect.
4. Demonstrated software engineering experience in developing JSAF extensions, interfaces to JSAF or interfaces to military C4I systems.
5. Software development experience using C/C++, software threads, XML, UML, DIS, HLA, Microsoft Windows and Linux.
6. Bachelor's degree in computer science, computer engineering, systems engineering, software engineering, electrical engineering from an accredited college or university.

#### **Desired Experience**

1. Master's degree in computer science, computer engineering, systems engineering, software engineering, electrical engineering from an accredited college or university.
2. Five or more years experience supporting military training events/exercises utilizing simulation based training systems.
3. Five or more years experience working on a DOD modeling and simulation project.
4. Operation military experience with a background in Marine Corps doctrine and tactics.

#### **Citizenship and Security Clearance**

Must be a U.S. Citizen able to obtain a Secret Clearance.

### **Systems Engineer**

Working within industry best practice systems engineering process, the system engineer ensures proper implementation of requirements and concept of operations, proper verification of system/ software requirements and proper allocation of requirements and proper implementation of design.

#### **Responsibilities**

1. Support the development, documentation and maintenance/management of operations concepts, requirements (system, element, segment, or subsystem level), external and internal interfaces and other systems engineering work products/artifacts.
2. Follow established engineering processes and procedures.
3. Development of test verification requirements, system test cases, test procedures, test conduct and test reports.
4. Supports System Engineering Master Plan and Test and Evaluation Program Plan development.
5. Apply technical standards, principles, theories, concepts and techniques to solve problems.
6. Contribute to the completion of project/program milestones under the general guidance of his/her immediate supervisor.
7. Preparing for and present at technical interchange meetings and design reviews with the development team, prime contractor or customer.
8. Develop and document physical interface definitions of components and elements.

#### **Required Experience**

1. Bachelor's degree in computer science, computer engineering, systems engineering, software engineering, electrical engineering from an accredited college or university.
2. Five or more years of system engineering experience working on simulation based training systems.
3. Demonstrated system engineering experience in a large scale software development project to include significant integration of software/hardware components and interfaces to external systems.
4. Requirements management experience with an automated requirements management tool.

#### **Desired Experience**

1. Master's degree in computer science, computer engineering, systems engineering, software engineering, electrical engineering from an accredited college or university.
2. Two or more years experience supporting military training events/exercises utilizing simulation based training systems.
3. Two or more years experience working on a DOD modeling and simulation project.
4. Operational military experience with a background in Marine Corps doctrine and tactics.

#### **Citizenship and Security Clearance**

Must be a U.S. Citizen able to obtain a Secret Clearance.

#### **Senior Software Engineer**

Working within an industry best practice software development lifecycle process, the senior software engineer serves as a software component(s) lead performing software requirements analysis, software design, code, unit test, integration and testing to satisfy DVTE requirements. Lead integration engineer role can be fulfilled by a Senior Software Engineer.

#### **Responsibilities**

1. Software component team leader responsible for the technical leadership, supervision and tasking of software engineers within the component(s) team.

2. Full lifecycle software development to include software requirements analysis, software design, software integration and test.
3. Interface with lead integration engineer regarding software component integration.
4. Evaluate and perform design tradeoffs regarding the architecture and software components.
5. Derivation of system-level requirements into software requirements.
6. Identification, documentation and repair of software defects.
7. Designing, coding and debugging applications in various software languages.
8. Software analysis, code analysis, requirements analysis, peer reviews, identification of software metrics, system risk analysis and software reliability analysis.
9. Object Oriented Design and Analysis (OOD and OOA).
10. Front end Graphical User Interface (GUI) design and development.
11. Conduct software quality assurance.
12. Conduct software performance tuning and load balancing.
13. Provide software installation support.
14. Integration of software with existing systems.
15. Evaluate and identify new technologies for implementation.
16. Maintain software configuration management, version control and coding standards compliance.
17. Develop software/system test plans and procedures.
18. Perform risk assessment of potential technical risks that may impact the DVTE program.

#### **Required Experience**

1. Eight or more years of software engineering experience working on simulation based training systems.
2. Three or more years serving as a software engineering team lead.
3. Demonstrated software engineering experience in developing JSAF extensions, interfaces to JSAF, or interfaces to military C4I systems.
4. Demonstrated experience with software component integration and test.
5. Demonstrated experience implementing distributed computing environments and client-server architectures.
6. Software development experience using C/C++, software threads, XML, UML, DIS, HLA, Microsoft Windows and Linux.
7. Bachelor's degree in computer science, computer engineering, systems engineering, software engineering, electrical engineering from an accredited college or university.

#### **Desired Experience**

1. Master's degree in computer science, computer engineering, systems engineering, software engineering, electrical engineering from an accredited college or university.
2. Two or more years experience supporting military training events/exercises utilizing simulation based training systems.
3. Two or more years experience working on a DOD modeling and simulation project.
4. Operation military experience with a background in Marine Corps doctrine and tactics.

#### **Citizenship and Security Clearance**

Must be a U.S. Citizen able to obtain a Secret Clearance.

### **Software Engineer**

Working within an industry best practice software development lifecycle process, the software engineer performs software requirements analysis, software design, code, unit test, integration and testing to satisfy DVTE requirements.

#### **Responsibilities**

1. Full lifecycle software development to include software requirements analysis, software design, software integration and test.
2. Evaluate and perform design tradeoffs regarding the architecture and software components.
3. Derivation of system-level requirements into software requirements.
4. Develop and maintain software development lifecycle documentation to include plans, design description and requirements specifications.
5. Identification, documentation and repair of software defects.
6. Designing, coding and debugging applications in various software languages.
7. Software analysis, code analysis, requirements analysis, peer reviews, identification of software metrics, system risk analysis, software reliability analysis.
8. Perform Object Oriented Design and analysis (OOD and OOA)
9. Front end Graphical User Interface (GUI) design and development.
10. Conduct software quality assurance.
11. Conduct software performance tuning and load balancing.
12. Provide software installation support.
13. Integration of software with existing systems.
14. Evaluate and identify new technologies for implementation.
15. Maintain software configuration management, version control and coding standards compliance.
16. Develop software/ system test plans and procedures.

#### **Required Experience**

1. Four or more years of software engineering experience working on simulation based training systems.
2. Demonstrated software engineering experience in developing JSAF extensions, interfaces to JSAF or interfaces to military C4I systems.
3. Software development experience using C/C++, software threads, XML, UML, DIS, HLA, Microsoft Windows and Linux.
4. Bachelor's degree in computer science, computer engineering, systems engineering, software engineering from an accredited college or university.

#### **Desired Experience**

1. Master's degree in computer science, computer engineering, systems engineering, software engineering, electrical engineering from an accredited college or university.
2. Two or more years experience supporting military training events/exercises utilizing simulation based training systems.
3. Two or more years experience working on a DOD modeling and simulation project.
4. Operational military experience with a background in Marine Corps doctrine and tactics.

#### **Citizenship and Security Clearance**

Must be a U.S. Citizen able to obtain a Secret Clearance.

### **Test Engineer**

Working within an industry best practice software development lifecycle process and system engineering process, the test engineer writes test cases, test procedures, develops test plans and performs testing to verify whether a system functions as specified according to the requirements. The Quality Assurance Engineer role can be fulfilled by a test engineer.

### **Responsibilities**

1. Conducts system-level testing to ensure DVTE satisfies operation requirements.
2. Creates defect reports for problems/issues identified during testing. Monitors and updates defect reports after repairs are retested.
3. Develops test plans.
4. Writes and maintains test cases and test procedures.
5. Identifies test methods to be applied for each test case.
6. Work with the development teams to capture and reuse automated unit test cases and test stubs/drivers.
7. Develops automated test scripts to assist in testing.
8. Ensures traceability between system requirements and test procedures are captured in the RTM.
9. Ensure proper version control and configuration management of the hardware/software environment required to perform testing.
10. Manages the defect database under the guidance of the QA engineer.
11. Conduct test readiness reviews prior to the conduct of formal testing.
12. Create and maintain an automated periodic build verification test.
13. Provides test status reports and metrics to senior program leadership.

### **Required Experience**

1. Four or more years of system/software test experience in a large-scale training systems project involving the integration of multiple software and hardware components and interfaces to external systems.
2. Four or more years of demonstrated experience in the development and maintenance of test plans, test procedures/descriptions, test cases and test reports.
3. Bachelor's degree in computer science, computer engineering, systems engineering, software engineering, electrical engineering from an accredited college or university.

### **Desired Experience**

1. Master's degree in computer science, computer engineering, systems engineering, software engineering, electrical engineering from an accredited college or university.
2. Two or more years experience supporting military training events/exercises utilizing simulation based training systems.
3. Two or more years experience working on a DOD modeling and simulation project.
4. Operational military experience with a background in Marine Corps doctrine and tactics.

### **Citizenship and Security Clearance**

Must be a U.S. Citizen able to obtain a Secret Clearance.

### **Information Systems Security Engineer**

The Information Systems Security Engineer develops, tests, implements and monitors security solutions specific to the information protection requirements of the DVTE program as established by the applicable DOD security requirements and standards.

#### **Responsibilities**

1. Document and maintain all DVTE security related requirements (IAC). Ensure traceability of security requirements to test procedures.
2. Develop, update and maintain DIACAP documentation applicable to DVTE.
3. Implement Security Technical Implementation Guides (STIGs) and STIG Checklist as applicable for the DVTE system.
4. Perform security vulnerability analysis using tools such as EYE RETINA and DISA GOLD DISK and perform technical analysis of results. Document vulnerabilities and implement approved mitigation approaches based on technical analysis.
5. Document, implement and test Information Assurance Vulnerability Alerts (IAVA's) in accordance with the DVTE Vulnerability Management Plan.
6. Complete assigned tasks on the DVTE DIACAP Plan of Action and Milestones (POA&M).
7. Assist the DVTE program office with the conduct of annual security reviews.
8. Assist the DVTE program office in the development of DVTE security-related policies and procedures.

#### **Required Experience**

1. Bachelor's degree in a technical discipline.
2. Five or more years experience with information security technologies, policies, processes and methodologies.
3. Strong working knowledge of Microsoft Windows and Linux operating systems.
4. Possess a demonstrated working experience with the Defense Information Assurance Certification and Accreditation Process (DIACAP) resulting in the certification and accreditation of a system and subsequent Authority to Operate (ATO).
5. Possess the following certifications: Certified Information Systems Security Professional (CISSP) and Information Systems Security Engineering (ISSEP).
6. Experience implementing DOD Information Assurance policies, procedures and regulations such as DOD IA Directives 8500.1 and 8500.2 as well as DOD 5200.40 and DOD 8510.2.

#### **Desired Experience**

1. Master's degree in computer science, computer engineering, systems engineering, software engineering, electrical engineering from an accredited college or university.
2. Two or more years experience supporting military training events/exercises utilizing simulation based training systems.
3. Two or more years experience working on a DOD modeling and simulation project.
4. Operational military experience with a background in Marine Corps doctrine and tactics.

#### **Citizenship and Security Clearance**

Must be a U.S. Citizen able to obtain a Secret Clearance.

### **Logistician**

The Life Cycle Logistics (LCL) specialist serves as a core member of the program team. Manages cost, schedule, performance and integration aspects of supportability for training systems and simulators; advocating supportable and integrated system designs. The logistician leads the program management team in developing the System Supportability Plan and logistics documentation (support plans, fielding plans and disposal plans). Directs the design of systems and their associated subsystems for supportability and integrates the ten logistics elements and related disciplines (configuration management, reliability, maintainability and environmental safety and health). The logistician should understand the relationship between logistics and systems engineering processes as well as all aspects of life cycle integrated logistics support.

### **Responsibilities**

1. Coordinate all activities that support the total lifecycle system management of the program.
2. Prepares the supportability section of the acquisition strategy, determining the scope and proper logistics support requirements, considerations and constraints to identify and address preparation for milestone decisions.
3. Manage the updates and amendments of acquisition logistics documentation.
4. Participate in Integrated Product Teams (IPTs).
5. Develops, assesses and directs the support requirements and identifies and analyzes associated risks. Develops the support risk mitigation strategy and incorporates it into the overall program Risk Mitigation Plan.
6. Manages the execution of subcontractor logistics efforts and serves as the Manager for logistics related Work Breakdown Structure (WBS) accounts.
7. Serves as a key member of Government design review teams. Directing all aspects of hardware and software design for supportability.
8. Provides key logistics testing input to documentation to ensure that all logistics area is covered in support of the program.
9. Maintain an accurate Configuration Management (CM) on all existing systems.
10. Uses sound methodologies and processes along with emerging tools and technologies to aid in making logistics decisions.
11. Develops and recommends initiatives for reducing Total Ownership Cost.
12. Monitors logistics metrics and identifies opportunities for common support solutions.
13. Identifies and plans the testing of logistics support, evaluating the results against the operational requirements and predetermined measurable metrics.
14. Maintain inventory baseline.
15. Identify support documentation needed by the Users.
16. Identify and meet support requirements, working with the government/operational forces, supporting establishment and external organizations when developing logistics requirements, fielding plans and information and support mechanisms.
17. Support ILS Inventory Program
18. Tack and manage all GFI/GFE provided.
19. Recommend Storage location for hardware.
20. Proper documentation has been updated.
21. Provide documentation guidance for system troubleshooting.
22. Inventory list.
23. Commercial equipment documentation.

24. Warranty claims and replacement parts.

**Experience**

1. Minimum five years experience in the field of logistics.
2. Bachelor's degree in business administration, management, industrial technology or industrial engineering.

**Citizenship and Security Clearance**

Must be a U.S. Citizen able to obtain a Secret Clearance.

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**Technical Writer**

The technical writer must

**Responsibilities may include**

1. Prepare user manuals and guides, technical help books, online help documents and engineering reports.
2. Work closely with the Government on finalizing products.
3. Communicate and interact with developers of simulation and training system functionality.

**Characteristics and Experience**

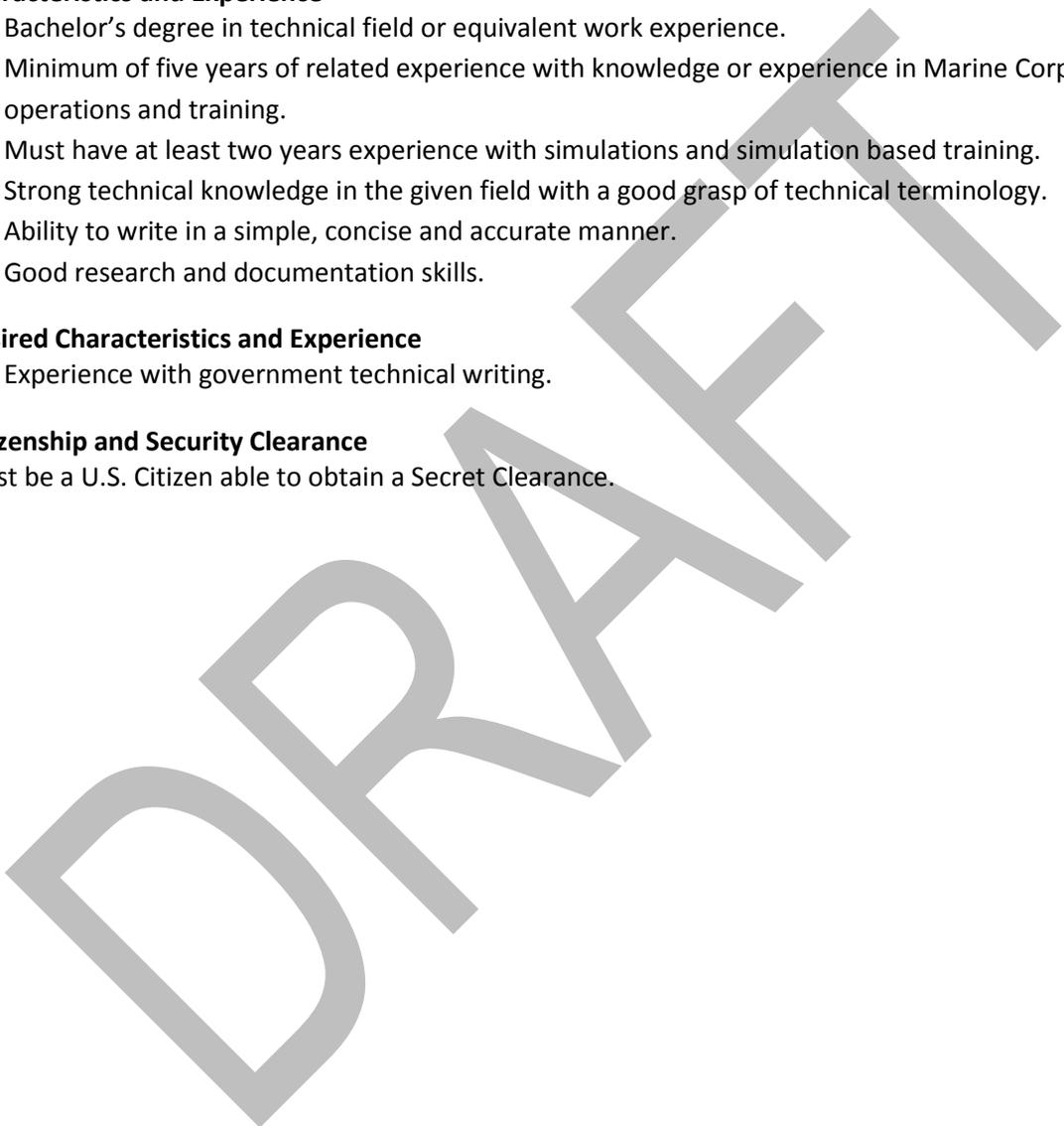
1. Bachelor's degree in technical field or equivalent work experience.
2. Minimum of five years of related experience with knowledge or experience in Marine Corps structure, operations and training.
3. Must have at least two years experience with simulations and simulation based training.
4. Strong technical knowledge in the given field with a good grasp of technical terminology.
5. Ability to write in a simple, concise and accurate manner.
6. Good research and documentation skills.

**Desired Characteristics and Experience**

1. Experience with government technical writing.

**Citizenship and Security Clearance**

Must be a U.S. Citizen able to obtain a Secret Clearance.



**Subject Matter Expert (SME)**

The Subject Matter Expert must

**Responsibilities may include**

1. Provide specific subject matter expertise as DVTE integrates additional C2 systems.
2. Provide specific military expertise “on real world” use cases.
3. Provide subject matter expertise on simulations/connect-ability as they are defined for interoperability with DVTE.

**Required Experience**

1. Must be at such a level to be considered a Subject Matter Expert

**Desired Experience**

1. Deployment

**Citizenship and Security Clearance**

Must be a U.S. Citizen able to obtain a Secret Clearance.

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**Appendix C – Contract Data Requirements List (CDRL) Table**

<b>CDRL</b>	<b>DID Number</b>	<b>Document Title</b>	<b>Page</b>	<b>Paragraph</b>
A001	DI-IPSE-81432A	System/Subsystem Design Description (SSDD)	20	3.7.16
A002	DI-NDTI-81284	Test and Evaluation Program Plan (TEPP)	33	3.9.20.2
A003	DI-NDTI-80603A	Test Procedure	34	3.9.20.10
A004	DI-SESS-81785	Systems Engineering Management Plan (SEMP)	25	3.9.2
A005	DI-IPSC-81427A	Software Development Plan (SDP)	17	3.7.1
A006	DI-IPSC-81436A	Interface Design Description (IDD)	21	3.7.18
A007	DI-IPSC-81433A	Software Requirements Specification (SRS)	19	3.7.7
A008	DI-IPSC-81434A	Interface Requirements Specification (IRS)	21	3.7.17
A009	DI-IPSC-81435A	Software Design Description (SDD)	17	3.7.8
A010	DI-IPSC-81438A	Software Test Plan (STP)	19	3.7.9
A011	DI-IPSC-81439A	Software Test Description (STD)	19	3.7.10
A012	DI-IPSC-81440A	Software Test Report (STR)	20	3.7.11
A013	DI-IPSC-81441A	Software Product Specification (SPS)	20	3.7.12
A014	DI-IPSC-81442A	Software Version Description (SVD)	20	3.7.13
A015	DI-MISC-80508B	DIACAP Implementation Plan (DIP)	37	3.9.21.3
A016	DI-MISC-80508B	Requirements Traceability Matrix (RTM)		
A017	DI-IPSC-81431A	System/Subsystem Specification (SSS)	20	3.7.15
A018	DI-CMAN80792	Validation Report		
A019	DI-IPSC-81633	Software Programmer's Guide	21	3.7.19
A020	DI-MCCR-80700	Computer Software Product End Item (CSPEI)	31	3.8.12
A021	DI-SAFT-80102B	Safety Assessment Report. (SAR)	37	3.8.23
B001	DI-MGMT-81650	Integrated Master Schedule (IMS)	22	3.8.5
B002	DI-MGMT-80227	Progress, Status, and Management Report	21	3.8.2
B003	DI-MGMT-80389B	Receipt of Government Materiel Report		
B004	DI-MGMT-81808	Contractor's Risk Management Plan	24	3.8.9
B005	DI-MGMT-81809	Risk Management Status Report	24	3.8.10
C001	DI-ADMN-81250A	Conference Minutes	11	3.6.8
D001	DI-LISS-81251	Equipment Inventory Records (EIR)		
E001	DI-IPSC-81443A	Software User Manual (SUM)	20	3.7.14

E002	DI-TMSS-80527B	COTS Manuals		
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# CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

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<b>A. CONTRACT LINE ITEM NO.</b>		<b>B. EXHIBIT</b>		<b>C. CATEGORY:</b> TDP ___ TM ___ OTHER <u>X</u>						
<b>D. SYSTEM/ITEM DVTE</b>		<b>E. CONTRACT/PR NO.</b>		<b>F. CONTRACTOR</b>						
<b>1. DATA ITEM NO.</b> A002	<b>2. TITLE OF DATA ITEM</b> TEST AND EVALUATION PROGRAM PLAN (TEPP)			<b>3. SUBTITLE</b>						
<b>4. AUTHORITY (Data Acquisition Document No.)</b> DI-NDTI-81284		<b>5. CONTRACT REFERENCE</b>		<b>6. REQUIRING OFFICE</b> MARCORSYSCOM (PM)						
<b>7. DD 250 REQ LT</b>	<b>9. DIST STATEMENT</b> C	<b>10. FREQUENCY</b> SEE BLK 16	<b>12. DATE OF 1ST SUBMISSION</b> SEE BLK 16	<b>14. DISTRIBUTION</b>						
<b>8. APP CODE</b>	C	<b>11. AS OF DATE</b>	<b>13. DATE OF SUBSEQUENT SUBMISSION</b> SEE BLK 16	<b>a. ADDRESSEE</b>		<b>b. COPIES</b>				
<b>16. REMARKS</b>				MCSC: PM TRAYSYS		Draft	Final			
							Reg	Repro		
<p>BLK 9 - THE FOLLOWING INFORMATION SHALL BE INCLUDED ON THE DELIBERABLE: DISTRIBUTION STATEMENT C: ADMINISTRATIVE OR OPERATIONAL USE" AS INDICATED IN SECNAV M5510.36 CHAPTER 8 APPENDIX A..</p> <p>BLK 10 - THE TEPP SHALL BE UPDATED AT LEAST ONCE PER DVTE SOFTWARE VERSION RELEASE.</p> <p>BLK 12 - THE TEPP SHALL BE SUBMITTED 90 DAYS PRIOR TO A TEST READINESS REVIEW (TRR). THE GOVERNMENT REQUIRES 30 CALENDAR DAYS FOR REVIEW AND COMMENT. THE CONTRACTOR SHALL INCORPORATE ANY REQUIRED CHANGES BASED ON GOVERNMENT COMMENTS AND RESUBMIT 15 CALENDAR DAYS AFTER RECEIPT OF COMMENTS. THIS REVIEW CYCLE SHALL CONTINUE UNTIL THE CONTRACTOR RECEIVES ACCEPTANCE FROM THE GOVERNMENT.</p> <p>BLK 13 - SUBSEQUENT SUBMISSIONS OF THE TEPP SHALL OCCUR 90 DAYS PRIOR TO SUBSEQUENT TEST READINESS REVIEWS.</p>				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">15. TOTAL -----&gt;</td> <td>1</td> <td>1</td> <td>1</td> </tr> </table>		15. TOTAL ----->		1	1	1
						15. TOTAL ----->		1	1	1

<b>17. PRICE GROUP</b>
<b>18. ESTIMATED TOTAL PRICE</b>

<b>G. PREPARED BY</b>		<b>H. DATE</b>		<b>I. APPROVED BY</b>		<b>J. DATE</b>	
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<b>A. CONTRACT LINE ITEM NO.</b>	<b>B. EXHIBIT</b>	<b>C. CATEGORY:</b> TDP ___ TM ___ OTHER <u>X</u>
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<b>D. SYSTEM/ITEM DVTE</b>	<b>E. CONTRACT/PR NO.</b>	<b>F. CONTRACTOR</b>
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<b>1. DATA ITEM NO.</b> A008	<b>2. TITLE OF DATA ITEM</b> INTERFACE REQUIREMENTS SPECIFICATION (IRS)	<b>3. SUBTITLE</b>
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<b>4. AUTHORITY (Data Acquisition Document No.)</b> DI-IPSC-81434A	<b>5. CONTRACT REFERENCE</b>	<b>6. REQUIRING OFFICE</b> MARCORSYSCOM (PM)
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<b>7. DD 250 REQ LT</b>	<b>9. DIST STATEMENT</b>	<b>10. FREQUENCY</b> SEE BLK 16	<b>12. DATE OF 1ST SUBMISSION</b> SEE BLK 16	<b>14. DISTRIBUTION</b>		
<b>8. APP CODE</b>	A	<b>11. AS OF DATE</b>	<b>13. DATE OF SUBSEQUENT SUBMISSION ASREQ</b>	<b>a. ADDRESSEE</b>		<b>b. COPIES</b>
					<b>Draft</b>	<b>Final</b>
					<b>Reg</b>	<b>Repro</b>

<b>16. REMARKS</b>  BLK 9 - THE FOLLOWING INFORMATION SHALL BE INCLUDED ON THE DELIBERABLE: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.  BLK 10 - THE IRS SHALL BE SUBMITTED AT LEAST ONCE PER DVTE SOFTWARE VERSION RELEASE.  BLK 12 - THE IRS SHALL BE SUBMITTED IAW THE IMS. THE GOVERNMENT REQUIRES 30 CALENDAR DAYS FOR REVIEW AND COMMENT. THE CONTRACTOR SHALL INCORPORATE ANY REQUIRED CHANGES BASED ON GOVERNMENT COMMENTS AND RESUBMIT 15 CALENDAR DAYS AFTER RECEIPT OF COMMENTS. THIS REVIEW CYCLE SHALL CONTINUE UNTIL THE CONTRACTOR RECEIVES ACCEPTANCE FROM THE GOVERNMENT.	MCSC:			
	PM TRAYSYS	1	1	1
<b>15. TOTAL -----&gt;</b>		1	1	1

<b>17. PRICE GROUP</b>
<b>18. ESTIMATED TOTAL PRICE</b>

<b>G. PREPARED BY</b>	<b>H. DATE</b>	<b>I. APPROVED BY</b>	<b>J. DATE</b>
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# CONTRACT DATA REQUIREMENTS LIST

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**A. CONTRACT LINE ITEM NO.**      **B. EXHIBIT**      **C. CATEGORY:** TDP \_\_\_ TM \_\_\_ OTHER X

**D. SYSTEM/ITEM DVTE**      **E. CONTRACT/PR NO.**      **F. CONTRACTOR**

**1. DATA ITEM NO.**      **2. TITLE OF DATA ITEM**      **3. SUBTITLE**  
A016      TECHNICAL REPORT - STUDY SERVICES      REQUIREMENTS TRACEABILITY MATRIX (RTM)

**4. AUTHORITY (Data Acquisition Document No.)**      **5. CONTRACT REFERENCE**      **6. REQUIRING OFFICE**  
DI-MISC-80508B           MARCORSYSCOM (PM)

**7. DD 250 REQ LT**      **9. DIST STATEMENT**      **10. FREQUENCY**      **12. DATE OF 1ST SUBMISSION**      **14. DISTRIBUTION**  
           SEE BLK 16      SEE BLK 16      **a. ADDRESSEE**      **b. COPIES**  
**8. APP CODE**      C      **11. AS OF DATE**      **13. DATE OF SUBSEQUENT SUBMISSION ASREQ**      **Draft**      **Final**  
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**16. REMARKS**

MCSC:  
PM TRAYSYS      1      1      1

BLK 9 - THE FOLLOWING INFORMATION SHALL BE INCLUDED ON THE DELIBERABLE: DISTRIBUTION STATEMENT C: ADMINISTRATIVE OR OPERATIONAL USE" AS INDICATED IN SECNAV M5510.36 CHAPTER 8 APPENDIX A..

BLK 10 - THE RTM SHALL BE SUBMITTED AT LEAST ONCE FOR EACH DVTE SOFTWARE VERSION RELEASE.

BLK 12 - THE RTM SHALL BE SUBMITTED AT THE SAME TIME AS THE DELIVERY OF THE SYSTEM SUBSYSTEM SPECIFICATION (SSS) AND SOFTWARE TEST DESCRIPTION (STD). THE GOVERNMENT REQUIRES 30 CALENDAR DAYS FOR REVIEW AND COMMENT. THE CONTRACTOR SHALL INCORPORATE ANY REQUIRED CHANGES BASED ON GOVERNMENT COMMENTS AND RESUBMIT 15 CALENDAR DAYS AFTER RECEIPT OF COMMENTS. THIS REVIEW CYCLE SHALL CONTINUE UNTIL THE CONTRACTOR RECEIVES ACCEPTANCE FROM THE GOVERNMENT.

BLK 14 - THE DESIRED FORMAT AND MINIMUM DATA ELEMENTS IS SPECIFIED IN THE MARCORSYSCOM MCSAMP HANDBOOK.

15. TOTAL ----->      1      1      1

**17. PRICE GROUP**  
  
**18. ESTIMATED TOTAL PRICE**

**G. PREPARED BY**      **H. DATE**      **I. APPROVED BY**      **J. DATE**

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**CONTRACT DATA REQUIREMENTS LIST**  
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<b>A. CONTRACT LINE ITEM NO.</b>	<b>B. EXHIBIT</b> A	<b>C. CATEGORY:</b> TDP ___ TM ___ OTHER <u>X</u>
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<b>D. SYSTEM/ITEM DVTE</b>	<b>E. CONTRACT/PR NO.</b>	<b>F. CONTRACTOR</b>
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<b>1. DATA ITEM NO.</b> E001	<b>2. TITLE OF DATA ITEM</b> SOFTWARE USER MANUAL (SUM)	<b>3. SUBTITLE</b>
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<b>4. AUTHORITY (Data Acquisition Document No.)</b> DI-IPSC-81443A	<b>5. CONTRACT REFERENCE</b> SOW para ____	<b>6. REQUIRING OFFICE</b> MARCORSYSCOM (PM)
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<b>7. DD 250 REQ LT</b>	<b>9. DIST STATEMENT</b> A	<b>10. FREQUENCY ASREQ</b>	<b>12. DATE OF 1ST SUBMISSION</b> SEE BLK 16	<b>14. DISTRIBUTION</b>		
<b>8. APP CODE</b>		<b>11. AS OF DATE</b>	<b>13. DATE OF SUBSEQUENT SUBMISSION ASREQ</b>	<b>a. ADDRESSEE</b>	<b>b. COPIES</b>	
					Draft	Final
					Reg	Repro

<b>16. REMARKS</b>  BLK 9 - THE FOLLOWING INFORMATION SHALL BE INCLUDED ON THE DELIVERABLE: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.  BLK 12/13 - THE CONTRACTOR SHALL SUBMIT SUM FOR EACH NEW VERSION RELEASE OF DEVELOPED SOFTWARE.	MCSC:				
	PMTRASYS	1	1	1	
	<b>15. TOTAL -----&gt;</b>	1	1	1	

<b>17. PRICE GROUP</b>
<b>18. ESTIMATED TOTAL PRICE</b>

<b>G. PREPARED BY</b>	<b>H. DATE</b>	<b>I. APPROVED BY</b>	<b>J. DATE</b>
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**DEPLOYABLE VIRTUAL TRAINING SYSTEM (DVTE)  
POST DEPLOYMENT SOFTWARE SUPPORT (PDSS)  
AND  
SOFTWARE DEVELOPMENT EFFORTS**

**TASK ORDER STATEMENT OF WORK  
FOR  
PHYSICALLY REALISTIC BATTLEFIELD - PHASE I**



**PROGRAM MANAGER, TRAINING SYSTEMS (PM TRASYS)  
MARINE CORPS SYSTEMS COMMAND (MCSC)  
12350 RESEARCH PARKWAY  
ORLANDO, FL 32826-3275**

**JOHN GRALIN -  
DVTE PJM**

**KEVIN ERDMANN -  
DVTE SYSTEMS ENGINEER**

**VERSION: DRAFT 1  
DATED: 23 SEP 2011**

## 1. Scope

The This Statement of Work (SOW) defines a Deployable Virtual Training System (DVTE) new software development requirement. The goal of this requirement is to make it so that DVTE Combined Arms Network (CAN) has Terrain Deformation and destructible objects to be able to do battle damage assessments and give a more realistic idea of the battle space.

### 1.1 Background

The DVTE CAN, in its current iterative form, is being utilized as a combined arms trainer. The main focus of the combined arms effort for the DVTE CAN is Call for Fire (CFF) and Close Air Support (CAS). These efforts are used to train Forward Observers (FO), Forward Air Controllers (FAC) and Joint Forward Air Controllers (JTAC). DVTE provides a constructive simulation of the battle space and the assets necessary to train the Marines. In the simulation the Marines are equipped with the virtual tools, communication methods and C4I systems that they would have at their disposal in the field to execute a mission. When a mission is executed in the simulation the Marines go through the steps and protocols to request either CFF or CAS on a specific target. However, Collateral damage cannot be assessed. Therefore, the battle damage assessment is inaccurate. Deformed terrain becomes landmarks of interest to better be able to explain the battle space to the battery or the aircraft.

DVTE is comprised of many different software systems to answer the training needs of the USMC. This task order applies to the Combined Arms Network (CAN). Requirements are levied on the DVTE program to evolve the system to make it more applicable to the training community. Requirements are sourced from the DVTE Capability Design Document (CDD signed December 17, 2009). Section 6.3.2.8 of the CDD describes a physically realistic battlefield as the following:

*“The physical parameters of DVTE models shall be determined when the terrain data base is developed for a specific scenario. DVTE shall have the ability to create deformable natural and man-made features with different states (healthy, damaged and destroyed) and exhibit damage effects of the weapon systems being employed. **(THRESHOLD)** DVTE shall be capable of physically based real-time terrain deformation. The exercise controller shall be able to change the physical parameters (construction material, thickness, density) of all structures (buildings, bridges, dams, roads) and location of those structures in order to associate the training audience with realistic effects (fire, debris, dust, rubble) and collateral damage of the selected weapons systems. The controller may change the parameters of groups of buildings or selected buildings before or during the training event. DVTE terrain datasets shall clearly capture content parameters and control dataset modification to ensure data quality and prevent unintended misuse of archived data. **(OBJECTIVE)**”*

The CDD gives rationale for the requirement:

*“Currently, Marines have very limited opportunities to train with live weapons systems against man-made platforms and physical structures. This training deficiency results in a lack of knowledge of the capabilities of our weapons systems against specific types of structures (3000 psi concrete, concrete reinforced with rebar, masonry, wood, steel, earthen, log construction, etc...) Thus, Marines may employ weapons systems against actual structures only to learn the desired results (casualties, breach, demolition, obstacle reduction, etc...) are not realized. Current technology permits the ability to model realistic physical effects against a given type of structure, and this modeling capability can be used in our 3D viewers to support our training objectives and permit proper planning and evaluation of selected courses of action.”*

From this CDD requirement the Government derived incremental and developmental requirements to fulfill the necessary aspects of the CDD. All interpretations of the CDD section 6.3.2.8 shall be the sole responsibility of the Government. The contractor shall not change the requirements.

## 2. Applicable Documents

See Basic SOW for Applicable Documents.

## 3. Tasks

### 3.1. General

The following tasks are outlined in the use cases. The use cases are ordered in priority. The use cases apply to all terrains in the DVTE Terrain Library.

### 3.2. Use Case 1 – Dynamic Terrain Deformation

<b>Use Case</b>	Dynamic Terrain Deformation (DTD)
<b>Description</b>	<p>For this task Dynamic Terrain Deformation is defined as the ability to change the landscape in real/run time for the 3D synthetic environment and the Semi-Autonomous Forces (SAF). Real Time and Run Time Terrain Deformation will be considered synonymous with DTD.</p> <p>Ordnance in this task is restricted to the arsenal in DVTE JSAF.</p> <p>Whenever terrain is impacted by ordinance the surface shall deform in a manner that is consistent with a physics model. The contractor shall develop or acquire the physics model that shall be employed. The physics model shall be described in the proposal. The parameters that shall be incorporated into the physics model shall be ordnance type and terrain</p>

	<p>material density. The ordnance type shall determine the force to apply upon the terrain. The terrain material density shall determine the inertia of the terrain or the amount of deformation that will be applied to the terrain given an applied force.</p> <p>DTD shall have an effect on the path of vehicles that will traverse the deformed terrain.</p> <p>DTD shall change the texture of the affected area to show “scorched earth” and entropic surroundings.</p>
<p><b>Assumptions</b></p>	<p>Collisions shall be inelastic. The force delivered by the ordnance shall only have the perpendicular component applied to the terrain. The force in the parallel component shall be ignored. This means that terrain is only shifted in the “height” direction. Therefore the kinetic energy above the terrain shall be ignored.</p> <p>The momentum of the ordnance shall be considered insignificant.</p> <p>The divergent force of the ordnance shall be spherical.</p> <p>No terrain deformation shall be modeled on bodies of water such as the ocean or rivers. Should ordnance land upon the bodies of water the DTD shall be ignored and there shall be no change to the texture of the water.</p> <p>Terrain material density shall be homogenous.</p> <p>DTD shall be seen across the network.</p> <p>DTD shall correlate between the 3D synthetic environment and DVTE JSAF.</p> <p>Small arms shall not be modeled.</p> <p>Results of DTD shall be observed at a distance based on rendering Level of Detail (LOD).</p>
<p><b>Actors</b></p>	<p>JSAF Operator          3D Synthetic Environment Operators.</p>
<p><b>Steps</b></p>	<ol style="list-style-type: none"> <li>1. A Marine in the 3D synthetic environment shall act as the FO, FAC or JTAC and shall request the appropriate ordnance to be employed against a target/location on the terrain.</li> <li>2. After the ordnance is shot and travels to the target/location it strikes the terrain.</li> <li>3. Upon impact with the terrain the ordnance shall release its kinetic energy.</li> <li>4. The kinetic energy shall diverge spherically and only the</li> </ol>

	<p>perpendicular component directed towards the terrain shall be transferred. The remainder of the energy shall not be considered or conserved (inelastic collision).</p> <ol style="list-style-type: none"> <li>5. As a parameter, the kinetic energy helps determine the adjusted height of the terrain.</li> <li>6. Additional polygons are added to the terrain to provide a smooth transformed surface.</li> <li>7. The texture is changed on the surface and the surrounding area of where the ordnance has interacted with the terrain.</li> <li>8. Terrain deformation is complete.</li> </ol> <p><u>Testing (by observation)</u>                  A vehicle shall be driven (with a constant velocity) over the area of interest or area where the terrain deformation shall occur. This will establish a path that shall be modified by DTD. The steps in this use case shall be executed in the area of interest. Once the terrain is deformed the same vehicle shall be driven over the same path (at the same constant velocity). It will be observed by a FO, FAC and JTAC that the vehicle deviates from the original path and follows the contour of the deformed terrain. At a constant velocity the deformed path shall take more time to traverse than the original path.                  The effect of DTD shall be observed in JSAF. This can be accomplished by usage of the Terrain Tool or a mark on the topographical map.</p>
<b>Variations</b>	<p>The test shall be exhaustive and iterate over the ordnance that exist both in DVTE JSAF and the 3D synthetic environment.</p>
<b>Non-Functional</b>	<p>DTD shall be persistent during the simulation.</p> <p>The source terrain shall not be modified by DTD. If a new simulation is started the original terrain shall be displayed.</p>
<b>Issues</b>	<p>The system Reliability, Availability and Maintainability shall not be degraded.</p> <p>System performance shall not have significant degradation.</p>

**3.3. Use Case 2 – Real/Run Time Destructible Objects Man-made (RRTDOM) and Real/Run Time Destructible Objects Natural (RRTDON)**

<b>Use Case</b>	Real/Run Time Destructible Objects Man-made (RRTDOM) Real/Run Time Destructible Objects Natural (RRTDON)
<b>Description</b>	<p>RRTDOM is defined when objects that are considered to be man-made (buildings, structures, walls and bridges) in the 3D synthetic environment and DVTE JSAF interact with ordnance.</p> <p>RRTDON is defined when objects that are considered to be natural (trees, vegetation and flora) in the 3D synthetic environment and DVTE JSAF interact with ordnance.</p> <p>Ordnance shall be restricted to the arsenal and vehicles in DVTE JSAF.</p> <p>In the RRTDOM and RRTDON task, when ordnance collides with man-made or natural objects they shall change states dependent upon the physics model. These states shall be healthy, damaged and destroyed. The contractor shall develop or acquire the physics model that shall be employed. The physics model shall be described in the proposal.</p>
<b>Assumptions</b>	<p>Collisions shall be simple and elastic. Simple collisions are determined by forces applied to the center of mass. Elastic collisions conserve kinetic energy and all kinetic energy shall be transferred to the object.</p> <p>Conservation of momentum shall not apply. Objects shall remain stationary.</p> <p>Object states shall be seen across the network.</p> <p>Small arms shall not be modeled.</p> <p>Results of RRTDOM and RRTDON shall be observed at a distance based on rendering Level of Detail (LOD).</p>
<b>Actors</b>	JSAF Operator 3D Synthetic Environment Operators.
<b>Steps</b>	<ol style="list-style-type: none"> <li>1. A Marine in the 3D synthetic environment shall act as the FO, FAC or JTAC and shall request the appropriate ordnance to be employed against an object.</li> <li>2. After the ordnance is shot and travels to the target/location it strikes the object.</li> <li>3. Upon impact with the object the ordnance shall release its kinetic</li> </ol>

	<p>energy.</p> <ol style="list-style-type: none"> <li>4. The kinetic energy shall transfer to the object's center of mass.</li> <li>5. The object's state shall change to the appropriate state determined by a work function threshold. The work function is the amount of work that the ordnance has acted upon the object. The thresholds shall determine when a state change has occurred (healthy to the damaged state and damaged to the destroyed state). The work function threshold shall be predefined for each object. The work function for each object shall be cumulative.</li> <li>6. RRTDOM and RRTDON complete.</li> </ol> <p><u>Testing (by observation)</u></p>
<p><b>Variations</b></p>	<ol style="list-style-type: none"> <li>1. A Marine in the 3D synthetic environment shall be operating a vehicle in the terrain.</li> <li>2. The vehicle will collide with the object.</li> <li>3. The momentum of the vehicle shall transfer to the object's center of mass.</li> <li>4. The object's state shall change to the appropriate state determined by the work function thresholds. The work function is the amount of work that the ordnance has acted upon the object. The thresholds shall determine when a state change has occurred (healthy to the damaged state and damaged to the destroyed state). The work function thresholds shall be predefined for each object. The work function for each object shall be cumulative.</li> <li>5. RRTDOM and RRTDON complete.</li> </ol> <p><u>Testing (by observation)</u></p> <p>The test shall be exhaustive and iterate over the ordnance that is used in DVTE JSAF and the 3D synthetic environment.</p>
<p><b>Non-Functional</b></p>	<p>RRTDOM and RRTDON shall be persistent during the simulation.</p> <p>The source terrain shall not be modified by RRTDOM or RRTDON. If a new simulation is started the original terrain shall be displayed.</p>
<p><b>Issues</b></p>	<p>The system Reliability, Availability and Maintainability shall not be degraded.</p> <p>System performance shall not have significant degradation.</p>

**4. Place of Performance**

All work will be done at the contractor's facility. Government verification testing shall be done at the contractor's facility.

**5. Period of Performance**

The period of performance shall be twelve months starting from the date of contract award.

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