DATA ITEM DESCRIPTION

1. TITLE	2. IDENTIFICATION NUMBER
System Production Readiness Review Package	**SBI-DID-0053**

3. DESCRIPTION/PURPOSE

The System Production Readiness Review (SPRR) Package will contain the information required to assess whether the system is capable to being produced for deployment. Development Test results will be reviewed to assess whether the requirements (capable of being verified at the system level) have been satisfied. The package will also include logistics support information and an assessment of production-readiness on the part of all equipment suppliers. This package will include inputs from Systems Engineering, Prime Mission Products, Design Engineering, Configuration Management, Quality Assurance, Test and Evaluation, Production/Operations, Logistics, Supplier Management, and the CBP customer. The Production/Operations Readiness Review Program Assessment Checklist is utilized to assess the capability, capacity, planning and overall operational health to accomplish the Production, Assembly, Integration and/or Test activities associated with the Statement of Work under contract.

This deliverable shall consist of both a read-ahead and the final presentation package.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6. DTC APPLICABLE
N/A	System Engineering / RIV	N/A

7. APPLICATION/INTERRELATIONSHIP

8. APPROVAL LIMITATION	9. REFERENCES
N/A	**CDRL H145**

10. PREPARATION INSTRUCTIONS

CONTENT: The package shall contain the following items to support the successful completion of a SBI*net* Project Requirements Review:

a. PRR entrance and exit criteria
b. Identify major project risks and mitigation plans
c. System Test results
d. Performance Test Results
e. System-level T&E Results
f. Integrated Master Schedule (IMS) updates
g. Integrated Logistics Support
    a. OT&E Test report addressing successful completion of RMA test requirements
    b. Approved Logistics Support Analysis Plan identifying tasks to be executed under the ILS Task Order addressing support requirements at the sector and national levels
    c. Approved configuration baseline for hardware and software
h. Applicable updates to A-Specification, B-Specifications, Level I, II, and III IDDs, and ICDs
i. Final Component Drawings

Dele
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Packa

j. Final Segment Drawings
k. Standardized Production Configuration drawings for standard items (example: sensor towers)
l. Analysis Reports on Impacts to existing Communications networks
m. Analysis Reports on Facilities Impacts (including applicable drawings)
n. Configuration Audit Results for SBI*net*-unique components
o. Supplier/Source Reports that detail sources of supply for each SBI*net* component and include production lead times and status of supplier agreements
p. Completed Formal Production Readiness Review Program Assessment Checklist
q. Component Vendor supply commitments showing lead times for quantity buys

FORMAT FOR SUBMISSION: The PRR package shall be in the contractor's format and provided in electronic media.

:

Below is the Check List to be used for the PRR.

Dele
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Packa

Formal Production Readiness Review Program Assessment Checklist

PURPOSE: The Production Readiness Review Program Assessment Checklist is utilized to assess the Partners capability, capacity, planning and overall operational health to accomplish the Production, Assembly, Integration and/or Test activities associated with the Statement of Work under contract.

Scoring: Red = Element deemed unacceptable / needs to be corrected/improved prior to approval.
Green = acceptable as is.

		R = Red, G = Green, U = Unknown / Unavailable, NA = Not Applicable						Comments
Special Interest	Area / Discipline	Legend:	R	Y	G	U	NA	
		1. Entrance Criteria						
		A. Successful Completion of CDR - all actions closed						
		C. Producibility review has been completed						
		D. Preliminary Production Readiness Review agenda, success criteria have been developed and agreed to by the technical team, project manager, chief engineer and review chair prior to the Formal Review						
		E. Significant production engineering problems encountered during development are resolved. P28 lessons learned have been incorporated.						
		F. Production Plans are adequate to begin fabrication and support site specific deployment as required.						
		2. Production Planning	R	Y	G	U	NA	
	Sector Division	A. Production Plan Complete						
		A. 1. Bill of Materials Identified (critical parts ID'd, adequate spares addressed)						
		A. 1 Sector Dvisions (how will the work be assigned (Example - BMGR III, Yuma, TxM, Tucson, etc.)						

	Subcontractor	B. Subcontractors Identified (capability and capacity completed)						
	Facilities	C. Facilities Required						
		C. 1. Square footage required						
		C. 2. Layout						
		C. 3. Typical Requirements (lighting, AC, restrooms, etc.)						
		C. 4. Special requirements (as applicable)						
		C.5. Square footage required						
		C. 6. Total Preventative Maintenance (TPM) deployed for critical equipment/machines						
		C. 7. Equipment/machinery designated for this activity Company owned and available for use (Gov't Property)						
	Transportation	D. Transportation of assemblies and kits to site						
		D. 1. Planned interaction with established Warehouse sites						
		D. 2. Warehouse/Field assembly plans						
	Manpower	E. Equivalent people required						
		E. 1. Shifts Planned						
		E. 2. Production rates established						
	Schedule	F. Integrated Master Schedule						
		F. 1. Line of Balance Flow						
		F. 2. Recovery/Rework process						
		F. 3. Metrics/Measurements (Cost, Quality, Schedule, Delivery)						
	Safety	G. Training and procedure						
		G. 1. PPE Requirements						
		G. 2. Eye protection						
		G. 3. Foot protection						
		G. 3. Chemicals						
		G. 4. Electrical						
	Assembly Process	H. Segment Integration (Engineering Released)						
		H. 1. Process flow chart						
		H. 2. Availability of parts (critical parts ID'd)						

		H. 3. Tooling identified						
		H. 4. Work instructions						
		H. 5. Quality inspection points						
		H. 6. Final buyoff						
	Assembly Process	I. Rack Assembly (Engineering Released)						
		I. 1. Availability of parts (critical parts ID'd)						
		I. 2. Process flow chart						
		I. 3. Tooling identified						
		I. 4. Work instructions						
		I. 5. Quality inspection points						
		I. 6. Final buyoff						
	Assembly Process	J. Kitting (Engineering Released)						
		J. 1. Process flow chart						
		J. 2. Availability of parts (critical parts ID'd)						
		J. 3. Tooling identified						
		J. 4. Work instructions						
		J. 5. Quality inspection points						
		J. 6. Final buyoff						
	Test	K. Test Process (as applicable) (Engineering Released)						
		K. 1. Planning						
		K. 2. Process flow chart						
		K. 3. Special Test Equipment/Tooling identified						
		K. 3. Quality inspection points						
	Final Acceptance	L. Boeing Acceptance						
		L. 1. Acceptance Data Package						
		L. 2. As Built vs. As Designed Reconciliation						
		L. 3. Certificate of Conformance						
		L. 4. Configuration Control yields system/product compliance						
	Risk	M. Identification of Manufacturing/Production Risks						
		M.1. Abatement/Mitigation Plans Identified						
		3. Exit Criteria	**R**	**Y**	**G**	**U**	**NA**	

		A. The PRR is considered complete when all action items are signed off, and an acceptable level of risk (if applicable) is ascertained.						
		B. Has the system product baseline been established and documented to enable hardware fabrication and software coding to proceed with proper configuration management?						
		C. Are adequate process and metrics in place for the program to succeed?						
		D. Are the risks known and manageable?						
		E. Is the program schedule executable (technical/cost risks)?						
		F. Is the program properly staffed?						
		G. Is the detailed design producible within the production budget?						
		H. Were PRR issues captured in Action Items and properly assigned, addressed and closed?						
		I. Was the proper technical authority represented at the review and is the program properly staffed to manage production and development?						
		J. Can the system produced satisfy the Customer/Boeing requirement?						

DATA ITEM DESCRIPTION		
1. TITLE **B Specifications Document**		2. IDENTIFICATION NUMBER **SBI-DID-0054**
3. DESCRIPTION/PURPOSE Documents the B-Level Requirements for the SBInet Program.		
4. APPROVAL DATE (YYMMDD) N/A	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR) System Engineering / RIV	6. DTC APPLICABLE N/A
7. APPLICATION/INTERRELATIONSHIP N/A		
8. APPROVAL LIMITATION N/A	9. REFERENCES **CDRL H141**	

10. PREPARATION INSTRUCTIONS

CONTENT:

1.0 Scope
- 1.1 Identification
- 1.2 System Overview
- 1.3 Document Overview

2.0 Applicable and Referenced Documents
- 2.1 Government Documents
  - 2.1.1 Applicable Government Documents
  - 2.1.2 Referenced Government Documents
- 2.2 Non-Government Documents
  - 2.2.1 Applicable Non-Government Documents
  - 2.2.2 Referenced Non-Government Documents

3.0 Requirements
- 3.1 System Performance Requirements
- 3.2 System Capability Requirements
- 3.3 System External Interface Requirements
  - 3.3.1 Interface Identification and Diagrams
- 3.4 System Internal Interface Requirements
- 3.5 System Data Requirements
- 3.6 Adaptation Requirements
- 3.7 System Safety
- 3.8 Security and Privacy Requirements
- 3.9 Natural Environment Requirements
- 3.10 Computer Resource Requirements
  - 3.10.1 Computer Hardware Requirements
  - 3.10.2 Computer Hardware Resource Utilization Requirements
  - 3.10.3 Computer Software Requirements
  - 3.10.4 Computer Communications Requirements
- 3.11 SBInet Quality Factors
- 3.12 Design and Construction Constraints
- 3.13 Human Factors Engineering (HFE)

3.14 Training-Related Requirements
3.15 Logistics
3.16 Other Requirements
3.17 Packaging Requirements
3.18 Precedence and Criticality of Requirements
4.0 Qualification Provisions
4.1 Introduction
4.2 Verification Method Definitions
4.2.1 Definition of Analysis
4.2.2 Definition of Demonstration
4.2.3 Definition of Inspection
4.2.4 Definition of Test
4.3 Verification Cross Reference Matrix Definitions
4.4 Verification Cross Reference Matrix
5.0 Requirements Traceability
6.0 Notes
6.1 Definition of Terms
7.0 Abbreviations and Acronyms

FORMAT FOR SUBMISSION: The read-ahead package shall be in the contractor's format and provided in electronic media.

DATA ITEM DESCRIPTION		
1. TITLE **A Specifications Document**		2. IDENTIFICATION NUMBER **SBI-DID-0055**
3. DESCRIPTION/PURPOSE Documents the A-Level Requirements for the SBInet Program.		
4. APPROVAL DATE (YYMMDD) N/A	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR) System Engineering / RIV	6. DTC APPLICABLE N/A
7. APPLICATION/INTERRELATIONSHIP N/A		
8. APPROVAL LIMITATION N/A	9. REFERENCES **CDRL H141**	

10. PREPARATION INSTRUCTIONS

CONTENT:

1.0 Scope
- 1.1 Identification
- 1.2 System Overview
- 1.3 Document Overview

2.0 Applicable and Referenced Documents
- 2.1 Government Documents
  - 2.1.1 Applicable Government Documents
  - 2.1.2 Referenced Government Documents
  - 2.2 Non-Government Documents
  - 2.2.1 Applicable Non-Government Documents
  - 2.2.2 Referenced Non-Government Documents

3.0 Requirements
- 3.1 System Performance Requirements
- 3.2 System Capability Requirements
- 3.3 System External Interface Requirements
  - 3.3.1 Interface Identification and Diagrams
- 3.4 System Internal Interface Requirements
- 3.5 System Data Requirements
- 3.6 Adaptation Requirements
- 3.7 System Safety
- 3.8 Security and Privacy Requirements
- 3.9 Natural Environment Requirements
- 3.10 Computer Resource Requirements
  - 3.10.1 Computer Hardware Requirements
  - 3.10.2 Computer Hardware Resource Utilization Requirements
  - 3.10.3 Computer Software Requirements
  - 3.10.4 Computer Communications Requirements
- 3.11 SBInet Quality Factors
- 3.12 Design and Construction Constraints
- 3.13 Human Factors Engineering (HFE)

3.14 Training-Related Requirements
3.15 Logistics
3.16 Other Requirements
3.17 Packaging Requirements
3.18 Precedence and Criticality of Requirements
4.0 Qualification Provisions
4.1 Introduction
4.2 Verification Method Definitions
4.2.1 Definition of Analysis
4.2.2 Definition of Demonstration
4.2.3 Definition of Inspection
4.2.4 Definition of Test
4.3 Verification Cross Reference Matrix Definitions
4.4 Verification Cross Reference Matrix
5.0 Requirements Traceability **Error! Bookmark not defined.**
6.0 Notes
6.1 Definition of Terms
7.0 Abbreviations and Acronyms

FORMAT FOR SUBMISSION: The Read-Ahead package shall be in the contractor's format and provided in electronic media.

DATA ITEM DESCRIPTION

1. TITLE	2. IDENTIFICATION NUMBER
System Validation and Verification Plan	**SBI-DID-0056**

3. DESCRIPTION/PURPOSE

The SBI*net* Validation and Verification Plan provides the verification processes to be used on the SBI*net* program (Program Management (PM) Task order and all subsequent task orders) for guidance in the verification and validation of end item deliverables of the SBI*net* in accordance with the SBI*net* Systems Engineering Plan (SEMP).

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6. DTC APPLICABLE
N/A	System Engineering / RIV	N/A

7. APPLICATION/INTERRELATIONSHIP

N/A

8. APPROVAL LIMITATION	9. REFERENCES
N/A	**CDRL H142**

10. PREPARATION INSTRUCTIONS

CONTENT:

1 INTRODUCTION
1.1 Purpose
1.2 Scope
1.3 V&V Constraints List
2 REFERENCES
2.1 SBInet Program References
2.2 Customer/Government References
2.3 Boeing References
2.4 Industry References
3 SBI*net* Overview
4 SBI*net* Verification and Validation Process
4.1 Requirements Definition
4.2 Verification and Validation (V&V) Planning
4.3 Product Configuration Evaluation and Confirmation
4.4 Verification & Validation Environment
4.5 V&V Procedure and Criteria Development
4.6 Verification Activities
4.7 Validation Activities
4.8 V&V Compliance Reporting
4.9 V&V Work Products for Peer Review
4.10 SBInet V&V Roles and Responsibilities
5 Quality Assurance
6 Definitions and Acronyms
6.1 Definitions
6.2 Acronyms

FORMAT FOR SUBMISSION: The Read-Ahead package shall be in the contractor's format and provided in electronic media.

DATA ITEM DESCRIPTION

1. TITLE	2. IDENTIFICATION NUMBER
Modeling and Analysis Plan	SBI-DID-0071

3. DESCRIPTION/PURPOSE

The Modeling and Analysis (M&A) Plan describes the modeling and analysis approach and strategy for the SBInet program. The M&A Plan focuses on the types of analyses and the purposes for those analyses with respect to the overall SBI*net* program needs.

This Data Item Description (DID) contains format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6. DTC APPLICABLE
N/A	Systems Engineering / MAA	N/A

7. APPLICATION/INTERRELATIONSHIP

N/A

8. APPROVAL LIMITATION	9. REFERENCES
N/A	CDRL H143

10. PREPARATION INSTRUCTIONS

Format Description

The plan shall be in a Microsoft Word compatible contractor selected format.

Content Description

This plan provides a description of the analysis tools and methods needed to produce the analysis products to meet the SBInet program System Level Analysis and Assessment needs with a special emphasis on the Mission Analysis and Assessment / Operational Effectiveness Measures aspects of the Modeling and Analysis plan.

- Introduction – document overview and general relationship to other program documents
- References – references to specific documents
- Analysis Models and Tools – brief summary / catalog of major tools (software) used for Modeling and Analysis in support of System Level Analysis and Assessment efforts.
- Analysis Products – major analysis products produced for System Level Analysis and Assessment (for example, Probability of Detection, Probability of Intercept, Threat Analysis, Transportation Analysis).
- Analysis Processes – description of analysis process used to conduct planned analyses.
- Analysis Process Methods – description of the methods used to conduct the analyses to generate the planned analysis products.

DATA ITEM DESCRIPTION	SBI-DID-0071

11. CONTINUATION

10. PREPARATION INSTRUCTIONS (Cont.)

- Modeling & Analysis Tools Verification and Validation – describes the approach and process for conducting verification and validation of the analysis tools with respect to their planned application for addressing SBI*net* analysis needs.

12. FORMAT/SUBMISSION:

Unless otherwise noted, the data products shall be in contractor's format and provided in electronic media.

DATA ITEM DESCRIPTION

1. TITLE	2. IDENTIFICATION NUMBER
Test Readiness Review Package	**SBI-DID-0072**

3. DESCRIPTION/PURPOSE

The Test Readiness Review Package will contain the necessary information to conduct a review to assess that the SBI*net* System Block is ready to proceed to formal system test. This package will include inputs from Systems Engineering, Segment Design, Configuration Management, Quality Assurance, Safety, Test and Evaluation, Production/Operations and the CBP customer. The purpose of the review is to gain concurrence from required technical, support and management personnel that all prerequisite activities have been completed, proper procedures have been prepared and approved, test personnel are available and test performance risks have been identified and appropriately mitigated.

This deliverable shall consist of both a read-ahead and the final presentation package.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6. DTC APPLICABLE
N/A	System Engineering / T&E	N/A

7. APPLICATION/INTERRELATIONSHIP

8. APPROVAL LIMITATION	9. REFERENCES
N/A	**CDRL 144**

10. PREPARATION INSTRUCTIONS

CONTENT: The package shall contain the following items to support the successful completion of a SBI*net* Test Readiness Review:

a. TRR entrance and exit criteria
b. Baselined and approved Test Configuration (H/W and S/W)
c. Approved Test Objectives
d. Approved Test Requirements
e. Defined Test Resources (Operating personnel, data input files, lab support equipment)
f. Approved Test Plans (DTP V1) – Expected to include items b-e above
g. Approved Test Procedures/Checklists (DTP V2)
h. Approved Data Management Plans (DMPs) indicating data and format to be collected
i. Approved Data Analysis Plans
j. A list identifying the empowered Boeing and Government test directors and quality representatives
k. A list of open paperwork (change requests, test anomalies, non-conformances, etc) impacting the test and dispositions indicating acceptable to proceed with test.
l. A documented, evaluated, and approved list of all waivers and deviations impacting the test.
m. Completed and approved component certification packages
n. Completed and approved system certification package
o. A list of all permissions (frequency allocations, permission to radiate for radars, communication gear, etc.) obtained
p. Identification of any hazards or safety concerns and respective controls associated with the test.

q. Approved Test Schedule
r. Completed Dry Runs/Regression Tests
s. Completed Analysis of Dry Runs/Regression Test
t. Safety Review Results
u. Documentation showing compliance with current version of the SBI*net* Systems Engineering Plan

FORMAT FOR SUBMISSION: The TRR package shall be in the contractor's format and provided in electronic media.

DATA ITEM DESCRIPTION

Title: DATA ACCESSION LIST (DAL)

Number: DI-MGMT-81453A
Approved Date: 20070927
AMSC Number: F9020
Limitation: N/A
DTIC Applicable: No
GIDEP Applicable: No
Office of Primary Responsibility: 11 (ASC/ENS)
Applicable Forms: N/A

Use/Relationship: The purpose of the Data Accession List (DAL) is to provide a medium for identifying contractor internal data which has been generated by the contractor in compliance with the work effort described in the Statement of Work (SOW). The DAL is an index of the generated data that is made available upon request.

a. This data item is not a substitute for standard data requirements that are contractually applied.

b. This DID contains the format, content, and intended use information for the data deliverable resulting from the work task described in the solicitation.

c. This DID supersedes DI-MGMT-81453.

Requirements:

1. Referenced Document. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as cited in the contract.

2. Format. The Data Accession List shall be in the contractor's format.

3. Content. The DAL shall specify internally generated data and computer software used by the contractor to develop, test, and manage the program. The format and content of the data listed on the DAL shall be as prepared by the contractor to document compliance with the SOW Task requirements.

3.1. The list shall include the identification number, title which shall describe content, security classification, and in-house release date.

3.2. The list shall also identify the Government Rights to the data using the following codes:

"GPR" – Government Purpose Rights
"UR" = Unlimited Rights
"LR" = Limited Rights
"RR" = Restricted Rights (Computer Software only)

4. End of DI-MGMT-81453A.

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MARCH 7, 2005

DI-MGMT-81650

DATA ITEM DESCRIPTION

TITLE: INTEGRATED MASTER SCHEDULE (IMS)

NUMBER: DI-MGMT-81650 **APPROVAL DATE:**
AMSC NUMBER: **LIMITATION:**
DTIC APPLICABLE: **GIDEP APPLICABLE:**
OFFICE OF PRIMARY RESPONSIBILITY: OUSD(AT&L)ARA/AM(SO)

APPLICABLE FORMS: None

USE/RELATIONSHIP: The Integrated Master Schedule (IMS) is an integrated schedule containing the networked, detailed tasks necessary to ensure successful program execution. The IMS is vertically traceable to the Integrated Master Plan (IMP) (if applicable), the Contract Work Breakdown Structure (CWBS), and the Statement of Work (SOW). The IMS shall be used to verify attainability of contract objectives, to evaluate progress toward meeting program objectives, and to integrate the program schedule activities with all related components. This DID is applicable to development, major modification, and low rate initial production efforts; it is not typically applied to full rate production efforts.

a. This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

b. This DID shall be applied to contracts that require Earned Value Management (EVM) and other contracts based on the contract risk assessment. Refer to the Earned Value Management Implementation Guide (EVMIG) for guidance on tailoring reporting.

c. The prime contractor is required to include significant external interfaces and critical items from suppliers, teammates, or other detailed schedules that depict significant and/or critical elements and Government furnished equipment or information dependencies for the entire contractual effort in a single integrated network. The determination of significant and critical shall be agreed to by the Government and the contractor and shall be defined and documented in the Contract Data Requirements List (CDRL).

d. The IMS shall be statused according to the contractor's management control system and shall be submitted no less frequently than monthly. If a Contract Performance Report (CPR) is required, the IMS shall be statused and submitted to the procuring activity prior to or concurrently with CPR Formats 1-5 (as applicable). The IMS may reflect data either as of the end of the calendar month or as of the contractor's accounting period cutoff date, provided it is consistent and traceable to the CPR (if applicable). When subcontractor schedule data reflects a different status date than the prime contractor's schedule status date, these status dates shall be described in the analysis section of the IMS.

e. This DID shall be used in conjunction with the CWBS DID, DI-MGMT-81334A, and the CPR DID, DI-MGMT-81466. (Note: The IMS DID may be required when there is no EVM (CPR) requirement.)

REQUIREMENTS:

1. Format. The IMS shall be created using a network capable Commercially Off the Shelf (COTS) scheduling software application. Unless otherwise provided in the CDRL, the IMS shall be delivered electronically in the native digital format (i.e., an electronic file produced by the contractor's scheduling

tool). (Note: When the technology is available, the CDRL may be tailored, upon agreement between the prime contractor and the Government representative, to allow the American National Standards Institute (ANSI) X12 standard (806 transaction set), the United Nations Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT) standard (PROTAP message), or the XML equivalent to be used to submit data electronically to the procuring activity with on-line access to the data.)

2. Content. The schedule shall contain the contract milestones, accomplishments, and discrete tasks/activities (including planning packages where applicable) from contract award to the completion of the contract. The schedule shall be an integrated, logical network-based schedule that correlates to the CWBS, and is vertically and horizontally traceable to the cost/schedule reporting instrument used to address variances such as the CPR (if applicable). The schedule shall have a numbering system that provides traceability to the IMP (if applicable) and SOW. It shall contain contractual milestones and descriptions and display summary, intermediate, and detailed schedules, and periodic analysis of progress to date. It shall include fields and data that enable the user to access the information by product, process, or organizational lines.

2.1 Contract Milestones and Definitions. Key programmatic events, which define progress and completion for each CWBS element, along with the definition for successful completion of the milestone.

2.2 Summary Master Schedule. A top-level schedule of key tasks/activities and milestones at the summary level of the CWBS and IMP (if applicable). It shall be an integrated roll up of the intermediate and detailed schedules (see 2.3 and 2.4 below) (vertical integration).

2.3 Intermediate Schedules. Mid-level contract schedules that include key tasks/activities and milestones and all associated accomplishments in the summary master schedule, traceable to the CWBS element or IMP event as necessary to display work effort at the intermediate level of summarization. There may be several intermediate schedules that depict varying levels of detail. They shall be integrated roll ups of the detailed schedules (see 2.4 below) (vertical integration).

2.4 Detailed Schedules. The lowest level of contract tasks/activities that form the network. The detailed schedules shall contain horizontal and vertical integration, as a minimum, at the work package and planning package level. The detailed schedules shall include all tasks/activities, work packages, and planning packages identified in the contract Performance Measurement Baseline (PMB). Every discrete task/activity, work package, and planning package shall be clearly identified and directly related to a control account. Work packages and planning packages shall be individually represented and summarize to or reconcile with the total budget for that control account. If Level of Effort (LOE) control accounts, work packages, or planning packages are included as tasks in the IMS, they shall be clearly identified as such. The detailed tasks/activities, work packages, and planning packages shall be traceable to only one CWBS, IMP, and performing organizational element, as applicable. The level of detail in the IMS (including number and duration of tasks/activities) shall follow the contractor's EVM process as documented in the EVMS system description, program directives, etc. Shorter-term work packages (ideally equal in length to the statusing interval) are preferred because they provide more accurate and reliable measures of work accomplished.

2.4.1 Key Elements of Detailed Schedules. The key elements of the detailed schedules include the following:

2.4.1.1 Task/Activity. An element of work with duration.

2.4.1.2 Milestone. A specific definable accomplishment in the contract network, recognizable at a particular point in time. Milestones have zero duration and do not consume resources.

2.4.1.3 Duration. The length of time estimated (or realized) to accomplish a task/activity.

2.4.1.4 Percent Complete (Schedule). The proportion of an activity or task that has been completed to time now. This usually involves updating or statusing the activity or task utilizing one of two methods: (1) update the remaining time to complete (remaining duration) and the scheduling software will then automatically update the schedule percent complete or (2) update the schedule percent complete and allow the scheduling software to calculate the time remaining (remaining duration) to complete. Either method will use the following formula: Percent of Duration Completed = (Actual Duration / Total Duration) X 100.

2.4.1.5 Task/Activity and Milestone Descriptions. These are descriptive titles that are concise, complete, and clearly identify the work effort being accomplished. Abbreviations may be used to shorten the descriptive titles.

2.4.1.6 Task/Activity Codes and Data Dictionary. A list of field definitions and code structures. This list shall be provided to the procuring activity.

2.4.1.7 Relationship/Dependency. These identify how predecessor and successor tasks/activities and milestones are logically linked. Relationships, also called network logic, are modeled in four ways:

2.4.1.7.1 FS (Finish to Start). A predecessor task/activity or milestone that must finish before a succeeding task/activity or milestone can start. FS relationships shall be used whenever possible.

2.4.1.7.2 SS (Start to Start). A predecessor task/activity or milestone that must start before a succeeding task/activity or milestone can start.

2.4.1.7.3 FF (Finish to Finish). A predecessor task/activity or milestone that must finish before a succeeding task/activity or milestone can finish.

2.4.1.7.4 SF (Start to Finish). A predecessor task/activity or milestone that must start before a succeeding task/activity or milestone can finish.

2.4.1.8 Total Float/Slack. The amount of time a task/activity or milestone can slip before it delays the contract or project finish date.

2.4.1.9 Free Float/Slack. The amount of time a task/activity or milestone can slip before it delays any of its successor tasks/activities or milestones.

2.4.1.10 Lag. An interval of time that must occur between a predecessor and successor task/activity or milestone. Since negative time is not demonstrable, negative lag is not encouraged. (Note: Lag should not be used to manipulate float/slack or constrain schedule.)

2.4.1.11 Early Start (ES). The earliest start date a task/activity or milestone can begin the precedence relationships. A computer-calculated date.

2.4.1.12 Early Finish (EF). The earliest finish date a task/activity or milestone can end. A computer-calculated date.

2.4.1.13 Late Start (LS). The latest start date a task/activity or milestone can start without delaying the contract or project target completion date. A computer-calculated date.

2.4.1.14 Late Finish (LF). The latest date a task/activity or milestone can finish without delaying the contract or project target completion date. A computer-calculated date.

2.4.1.15 Critical Path. A sequence of discrete tasks/activities in the network that has the longest total duration through the contract or project. Discrete tasks/activities along the critical path have the least amount of float/slack. The critical path and near-critical paths (reporting requirements for near-critical paths shall be specified in the CDRL) are calculated by the scheduling software application. The guidelines for critical path and near-critical path reporting are as follows:

2.4.1.15.1 Methodology. The IMS software application computes a critical path and near-critical paths based on precedence relationships, lag times, durations, constraints, and status. Artificial constraints and incorrect, incomplete, or overly constrained logic shall be avoided because they can skew the critical path and near-critical paths.

2.4.1.15.2 Identification. The critical path shall be easily identified.

2.4.1.16 Constraints. Limits applied to network start and finish dates (e.g., "finish no later than"). (Note: Certain types of constraints should be used judiciously because they may impact or distort the network critical path.)

2.4.1.17 Current Schedule. The IMS reflects the current status and forecast. It includes forecasted starts and finishes for all remaining tasks/activities and milestones. Significant variances to the baseline schedule shall be explained in the periodic analysis. Thresholds for reporting shall be specified in the CDRL.

2.4.1.18 Baseline Schedule. Baseline dates in the IMS shall be consistent with the baseline dates in the PMB for all work packages, planning packages, and control accounts (if applicable). The guidelines for maintaining the baseline schedule are as follows:

2.4.1.18.1 Schedule Changes. Changes to the schedule shall be baselined when incorporated into the schedule.

2.4.1.18.2 Baseline Schedule Changes. Changes to the baseline schedule shall be made in accordance with the contractor's EVM process. Any movement of contractual milestones in the baseline schedule shall be derived only from either authorized contract changes or an approved over target schedule.

2.4.1.19 Schedule Progress. The IMS shall reflect actual progress and maintain accurate start and finish dates for all tasks/activities and milestones. The guidelines for reflecting schedule progress are as follows:

2.4.1.19.1 Actual Start and Finish Dates. Actual start and actual finish dates shall be recorded in the IMS. Actual start and actual finish dates, as recorded, shall not be later than the status date.

2.4.1.19.2 Progress Line. The progress line depicted in a Gantt chart shall be applied to the current schedule.

2.4.1.20 Retention of Data for Completed Tasks/Activities. Historical performance on completed tasks/activities shall be maintained electronically for analytical use. Historical performance shall be maintained at the time of key program events (Integrated Baseline Review, Critical Design Review, etc.) for all critical tasks/activities. Data to be retained includes logic, actual and baseline durations, actual and baseline start and finish dates, and the three-point estimates that were used before the task/activity started.

2.4.1.21 External Dependencies. The IMS shall identify significant external dependencies that involve a relationship or interface with external organizations, including all Government furnished items (e.g., decisions, facilities, equipment, information, data, etc.). The determination of significant shall be agreed to by the Government and contractor and shall be defined and documented in the CDRL. The required or expected delivery dates shall also be identified in the IMS.

2.4.1.22 Schedule Margin. A management method for accommodating schedule contingencies. It is a designated buffer and shall be identified separately and considered part of the baseline. Schedule margin is the difference between contractual milestone date(s) and the contractor's planned date(s) of accomplishment.

2.4.1.23 Schedule Risk Assessment. A schedule risk assessment predicts the probability of project completion by contractual dates. Three-point estimates shall be developed for remaining durations of remaining tasks/activities that meet any of the following criteria: (1) critical path tasks/activities, (2) near-critical path tasks/activities (as specified in the CDRL), (3) high risk tasks/activities in the program's risk management plan. These estimates include the most likely, best case, and worst case durations. They are used by the contractor to perform a probability analysis of key contract completion dates. The criteria for estimated best and worst case durations shall be applied consistently across the entire schedule and documented in the contractor's schedule notes and management plan. The guidelines for estimates are as follows:

2.4.1.23.1 Most Likely Estimate. Schedule durations based on the most likely estimates.

2.4.1.23.2 Best/Worst Case Estimates. Best and worst case assumptions shall be disclosed.

The contractor schedule risk assessment shall explain changes to the critical path, margin erosion, and mitigation plans. It shall be incorporated into the contractor's program risk management process. The schedule risk assessment shall be submitted as specified in the CDRL and prior to the Integrated Baseline Review. The risk analysis may be performed within the IMS or within a separate risk tool as appropriate based on the capability of the automated scheduling tool.

2.4.1.24 User Defined Fields. All user defined fields in the IMS shall be identified by providing a mapping of all fields used in the scheduling software application.

2.4.1.25 Reserved Fields. The Government may reserve some fields and/or require the contractor to use certain fields for specific information. The requirement for reserved fields shall be specified in the CDRL.

2.4.1.26 Calendar. The arrangement of normal working days, together with non-working days, such as holidays, as well as special work days (i.e.,

overtime periods) used to determine dates on which project work will be completed.

2.5 Monthly Analysis. Monthly analysis is a monthly assessment of schedule progress to date and includes changes to schedule assumptions, variances to the baseline schedule, causes for the variances, potential impacts, and recommended corrective actions to minimize schedule delays. The analysis shall also identify potential problems and an assessment of the critical path and near-critical paths. Thresholds for reporting significant variances to the baseline schedule and near-critical paths shall be specified in the CDRL. If a CPR Format 5 is required, the monthly analysis shall be submitted to the procuring activity prior to or concurrently with the CPR Format 5.

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