National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas 77058

**NSTS 07700,
VOLUME XX - BOOK 1
REVISION B
MARCH 7, 2011**

**REPLACES
NSTS 07700, VOLUME XX
REVISION A**

SPACE SHUTTLE

SPACE SHUTTLE CLOSEOUT REQUIREMENTS

BOOK 1

TRANSITION AND RETIREMENT

PROGRAM DEFINITION AND REQUIREMENTS

REVISION LOG

REV LTR	CHANGE NO	DESCRIPTION	DATE
		BASELINE ISSUE (Reference: Space Shuttle PRCBD S062804, dated 1/25/07) also includes CAR S062804.	02/28/07
A	1	REVISION A (Reference: Space Shuttle PRCBD S062804A, dated 8/19/09) also includes SSP DOC-685.	09/10/09
B	3	REVISION B (Reference: Space Shuttle PRCBD S100101C, dated 2/7/11) also includes Changes 1 and 2. *NOTE: This Revision B, of NSTS 07700, Volume XX has been separated into Book 1 and Book 2 to define all requirements necessary to properly close out the Space Shuttle Program.*	03/07/11

CHANGE SHEET

FOR

PROGRAM DEFINITION AND REQUIREMENTS
VOLUME XX - Space Shuttle
Closeout Requirements
BOOK 1
TRANSITION AND RETIREMENT

CHANGE NO. 4

Program Requirements Control Board Directive No. S100105B/(1-1), dated 3/8/11.(1)

March 28, 2011

Eddie L. King
Secretary, Program Requirements
Control Board

CHANGE INSTRUCTIONS

1. Remove the following listed pages and replace with the same numbered attached pages:

Page	PRCBD No.
4-9 - 4-10	S100105B

   NOTE: A black bar in the margin indicates the information that was changed.

2. Remove the List of Effective Pages, dated March 7, 2011 and replace with List of Effective Pages, dated March 28, 2011.

3. Sign and date this page in the space provided below to show that the changes have been incorporated and file immediately behind the List of Effective Pages.

_____ _____
Signature of person incorporating changes Date

PROGRAM DEFINITION AND REQUIREMENTS
VOLUME XX - Space Shuttle
Closeout Requirements
BOOK 1
TRANSITION AND RETIREMENT

*Revision B (Reference PRCBD No. S100101C, dated 2/7/11.)

LIST OF EFFECTIVE PAGES

March 28, 2011

The current status of all pages in this document is as shown below:

Page No.	Change No.	PRCBD No.	Date
i - vi	Rev. B	S100101C	February 7, 2011
1-1 - 1-2	Rev. B	S100101C	February 7, 2011
2-1 - 2-4	Rev. B	S100101C	February 7, 2011
3-1 - 3-2	Rev. B	S100101C	February 7, 2011
4-1 - 4-8	Rev. B	S100101C	February 7, 2011
4-9 - 4-10	4	S100105B	March 8, 2011
5-1 - 5-2	Rev. B	S100101C	February 7, 2011
6-1 - 6-2	Rev. B	S100101C	February 7, 2011

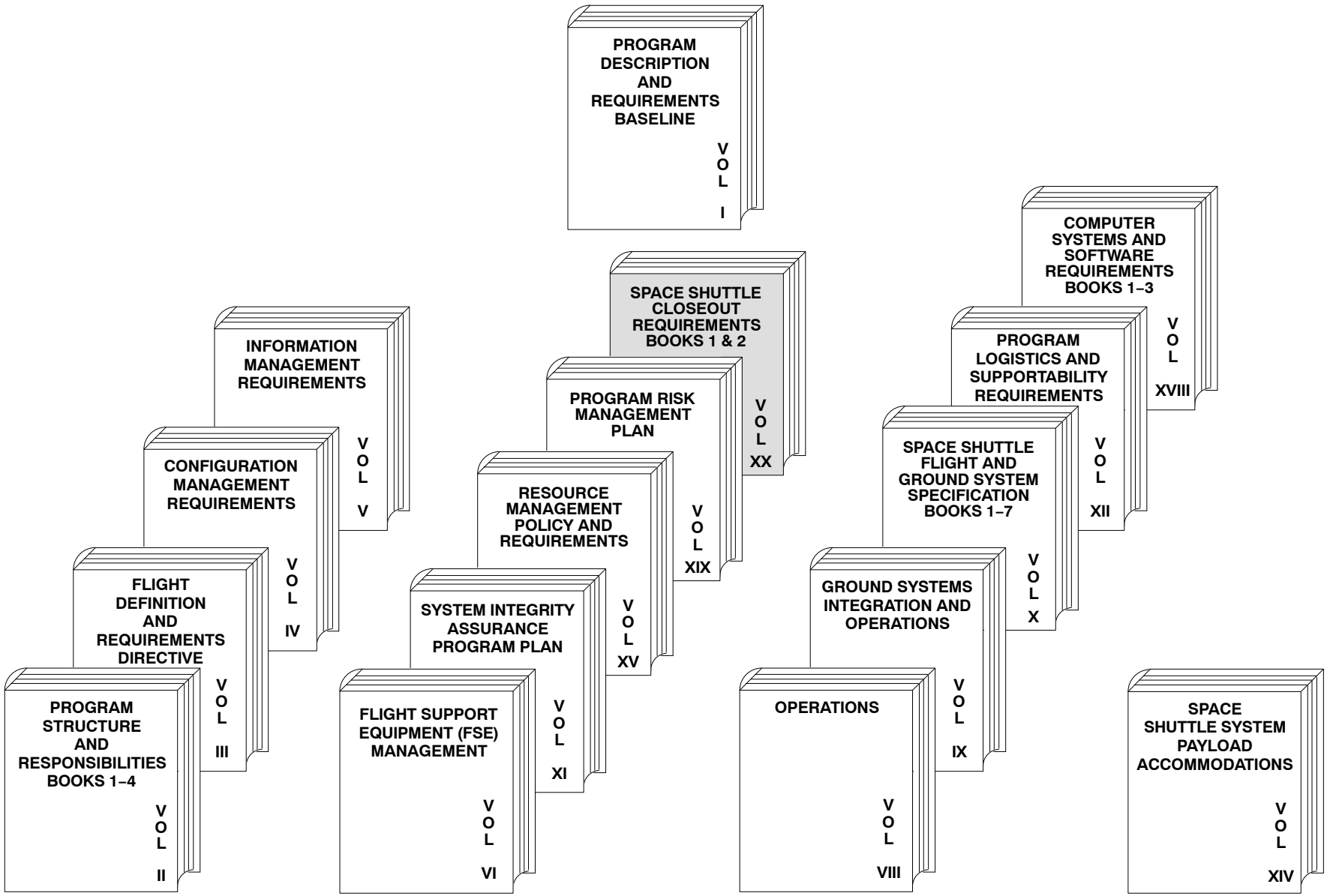
NSTS 07700,
VOLUME XX - BOOK 1

SPACE SHUTTLE

SPACE SHUTTLE CLOSEOUT REQUIREMENTS

BOOK 1
TRANSITION AND RETIREMENT

SPACE SHUTTLE
PROGRAM DEFINITION AND REQUIREMENTS - NSTS 07700



NOTE: THE FOLLOWING VOLUME NUMBERS ARE
RESERVED: XVII
RETIRED: II–BKS 1 & 4; VI–BK 2; VII; X–BKS 5 & 7; XIII; XVI

FOREWORD

Efficient management of the Space Shuttle Program (SSP) dictates that effective control of program closeout activities be established. Requirements, directives, procedures, interface agreements, and system capabilities shall be documented, baselined, and subsequently controlled by SSP management.

Program requirements, directives, procedures, etc., controlled by the Manager, Space Shuttle Program, are documented in the volumes of this document, NSTS 07700. The accompanying illustration identifies the volumes that make up the Space Shuttle Program Definition and Requirements. Volume I contains overall descriptions of the NSTS 07700 documentation. Requirements to be controlled by the NASA project managers are identified, documented, and controlled by the project.

This volume, NSTS 07700, Volume XX - Books 1 and 2 defines the SSP requirements for closeout of the Space Shuttle Program. The Office of Primary Responsibility (OPR) for NSTS 07700, Volume XX - Book 1 is the SSP Business Management Office (BMO).

On January 14, 2004, President George W. Bush announced *A Renewed Spirit of Discovery: The President's Vision for U.S. Space Exploration*, a new directive for the Nation's space program. The fundamental goal of the directive is "to advance U.S. scientific, security, and economic interests through a robust space exploration program." With this action, the President committed the Nation to a journey of exploring the solar system and beyond, returning to the Moon in the next decade, then venturing further into the solar system, ultimately sending humans to Mars and beyond. Congress endorsed this Vision for Space Exploration and overwhelmingly adopted the NASA Authorization Act of 2005, which was signed into law on December 30, 2005.

In accordance with The Vision for Space Exploration, NASA will use the Space Shuttle to complete assembly of the International Space Station Program (ISSP) by 2011 using as few flights as possible, meeting our international commitments and enabling the ISS to support research and Exploration System goals. The SSP's highest priority is to safely complete the mission manifest by 2011. To that end, NASA has implemented the Space Shuttle Transition and Retirement (T&R) activity.

All elements of the SSP must adhere to these baselined requirements. When it is considered necessary by the Space Shuttle program element/project managers to change, waive or deviate from the requirements, an SSP Change Request (CR) shall be submitted to the Program Requirements Control Board (PRCB) Secretary. The CR must include a complete description of the change, waiver, or deviation and the rationale to justify its consideration. All such requests will be processed in accordance with NSTS 07700, Volume IV - Book 1, and dispositioned by the Manager, Space Shuttle Program, on a Space Shuttle PRCB Directive (PRCBD).

John P. Shannon
Manager, Space Shuttle Program

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CONTENTS

NSTS 07700, Volume XX - Book 1

FIGURES

1.0 INTRODUCTION

1.1 PURPOSE

This document establishes the program-level requirements for the Space Shuttle Program (SSP) closeout.

1.2 SCOPE

All Space Shuttle closeout functions and procedures are documented within NSTS 07700, Volume XX - Book 1 and NSTS 07700, Volume XX - Book 2, Space Shuttle Closeout Requirements, Closeout Requirements (To Be Supplied [TBS]). This document, NSTS 07700, Volume XX - Book 1, is applicable to all elements/projects and support organizations involved in the SSP closeout activities. SSP elements/projects are responsible for implementing these project-level requirements.

The following definitions differentiate between requirements and other statements in this document.

Shall:	This is the only verb used for the binding requirements.
Should/May:	These verbs are used for stating non−mandatory goals.
Will:	This verb is used for stating facts or declaration of purpose.

1.3 GOALS

The SSP Transition and Retirement (T&R) goals are to:

a. Take no action that will impede the ability to safely and effectively complete the fly out of the SSP.

b. Perform T&R in a cost-effective manner.

c. Provide an interface to other programs and institutional elements for capability transition.

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2.0 APPLICABLE DOCUMENTS

The following documents of the date and issue shown form a part of this document to the extent specified herein. "(Current Issue)" is shown in place of a specific date and issue when the document is under Space Shuttle PRCB control. The current status of documents shown with "(Current Issue)" may be determined from NSTS 08102, Program Document Description and Status Report.

Volumes of NSTS 07700 (Current Issue)	Program Definition and Requirements Ref. Foreword
NSTS 07700 Volume I (Current Issue)	Program Description and Requirements Baseline Ref. Foreword
NSTS 07700 Volume IV - Book 1 (Current Issue)	Configuration Management Requirements, Requirements Ref. Foreword
NSTS 07700 Volume XIX (Current Issue)	Program Risk Management Plan Ref. Para. 4.4.1
NSTS 07700 Volume XX - Book 2 (TBS)	Space Shuttle Closeout Requirements, Closeout Requirements Ref. Foreword, Para. 1.2, 4.6

NSTS 07700 Volume XX - Book 2 Appendix 08 (TBS)	Space Shuttle Closeout Requirements, Closeout Requirements Operations Closeout Requirements Ref. Para. 4.6
NSTS 08171	Operations and Maintenance Requirements Specification Document (OMRSD) Ref. Para. 4.6.2.2, 4.6.4
NSTS 60584 (Current Issue)	Orbiter Fleet Safing Document (OFSD) Ref. Para. 4.6.2.1, 4.6.2.2, 4.6.2.5, 4.6.3, Fig 4-2
NSTS 60585 (Current Issue)	End-State Subsystems Requirements Document (ESSRD) Ref. Para. 4.6.2.1, 4.6.2.2, 4.6.2.5, 4.6.3, 4.6.4, Fig 4-2
JICB-001 Signed December 18, 2008	NASA Transition Management Plan Ref. Para. 4.2
NPR 4310.1	Identification and Disposition of NASA Artifacts Ref. Para. 4.4.2
NPR 7120.5D	NASA Space Flight Program and Project Management Requirements Ref. Para. 6.0

2.1 REFERENCE DOCUMENTS

The following documents and program directives provide requirements traceability for this document. In the event of a requirement conflict between the listed documents and program directives and the contents of this document, NSTS 07700 takes precedence. The current revision of the following documents at the time of this document baseline release is applicable.

NSTS 5300.4(1D-2)	Safety, Reliability, Maintainability and Quality Provisions for the Space Shuttle Program
NSTS 60538	Space Shuttle Program Government Quality Assurance Program
AS 9100	Quality Management System - Aerospace - Requirements
NASA Ltr. MD-06-001	Roles, Responsibilities, and Forward Actions on Space Shuttle Transition
NASA Ltr. MM-06-007	Space Shuttle Program (SSP) Human Capital Retention Plans
NPD 8500.1	NASA Environmental Management
NPD 8820.2C	Design and Construction of Facilities
NPR 1441.1	NASA Records Retention Schedules
NPR 8000.4	Agency Risk Management Procedural Requirements
NPR 8800.15A	Real Estate Management Program Implementation Manual

NPR 8820.2E	Facility Project Requirements
Signed January 26, 2007	Space Shuttle Program Commitment Agreement (PCA)

Strategic Planning Office's Best Practices Reports: The latest information obtained on transition and closeout best practices is maintained on-line on the SSP Transition website.

3.0 GROUNDRULES, CONSTRAINTS, AND ASSUMPTIONS

The SSP T&R process will be performed within the following parameters:

a. The last flight of the SSP will be completed by the end of FY 2011.

b. The SSP shall not compromise safety to the crew, to ground teams, or to the public.

c. Program complete will be defined as the successful completion of the manifest, while maintaining full confidence in the integrity of the system throughout the flight schedule.

d. Mission execution and T&R emphasis shall be to maintain capabilities for only as long as they are needed to safely execute the manifest.

e. SSP T&R activities shall utilize existing Program, Center, and Agency processes to the greatest extent possible.

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4.0 TRANSITION REQUIREMENTS

4.1 TRANSITION DOCUMENTATION

a. The SSP shall develop and maintain a Transition Management Plan (TMP). The TMP defines the management approach to accomplish the Volume XX - Book 1 requirements.

b. The SSP shall develop and maintain a:

   1. T&R Environmental Management Plan that will address the environmental requirements associated with the SSP T&R, establish a risk management strategy to help identify and mitigate risks, provide guidance on meeting requirements, and address communications with SSP, International Space Station Program (ISSP), and Constellation Program (CxP), NASA Headquarters (HQ), and the responsible centers

   2. Human Capital Management Plan that will define the strategy that NASA will implement to ensure retention of critical workforce skills needed for safe and successful mission execution and the smooth transition of Shuttle workforce skills (as appropriate) to the ISSP, exploration systems, and other future programs

c. The SSP elements/projects shall develop and maintain element/project-level T&R implementation plans.

4.2 TRANSITION STRUCTURE AND INTERFACES

The NASA Strategic Management Council (SMC) has charged the Space Operations Mission Directorate (SOMD) and the Exploration Systems Mission Directorate (ESMD) with leadership and coordination with other organizations in developing the processes necessary to evolve from current operations to future operations.

JICB-001, NASA Transition Management Plan identifies the need for the Space Shuttle, ISS and Constellation Programs to effectively exchange knowledge and to identify and appropriately disposition capabilities for transition. The establishment of the Transition Control Board (TCB), jointly chaired by the Associate Administrators (AAs) for Space Operations and Exploration Systems Mission Directorates and the Assistant Administrator for Infrastructure and Administration, meets this need. The TCB serves as the NASA HQ decision-making forum for T&R when the Program's authority is exceeded or the decision affects a capability with potential use by other programs, or is of high value or uniqueness.

The SSP shall provide support to this agency function by elevating issues and providing information, as appropriate.

Figure 4-1 graphically depicts the control board structure and HQ-Center relationships in NASA Transition.

FIGURE 4-1

SSP/CxP/ISS BI-LATERAL AND TRI-LATERAL BOARD STRUCTURE

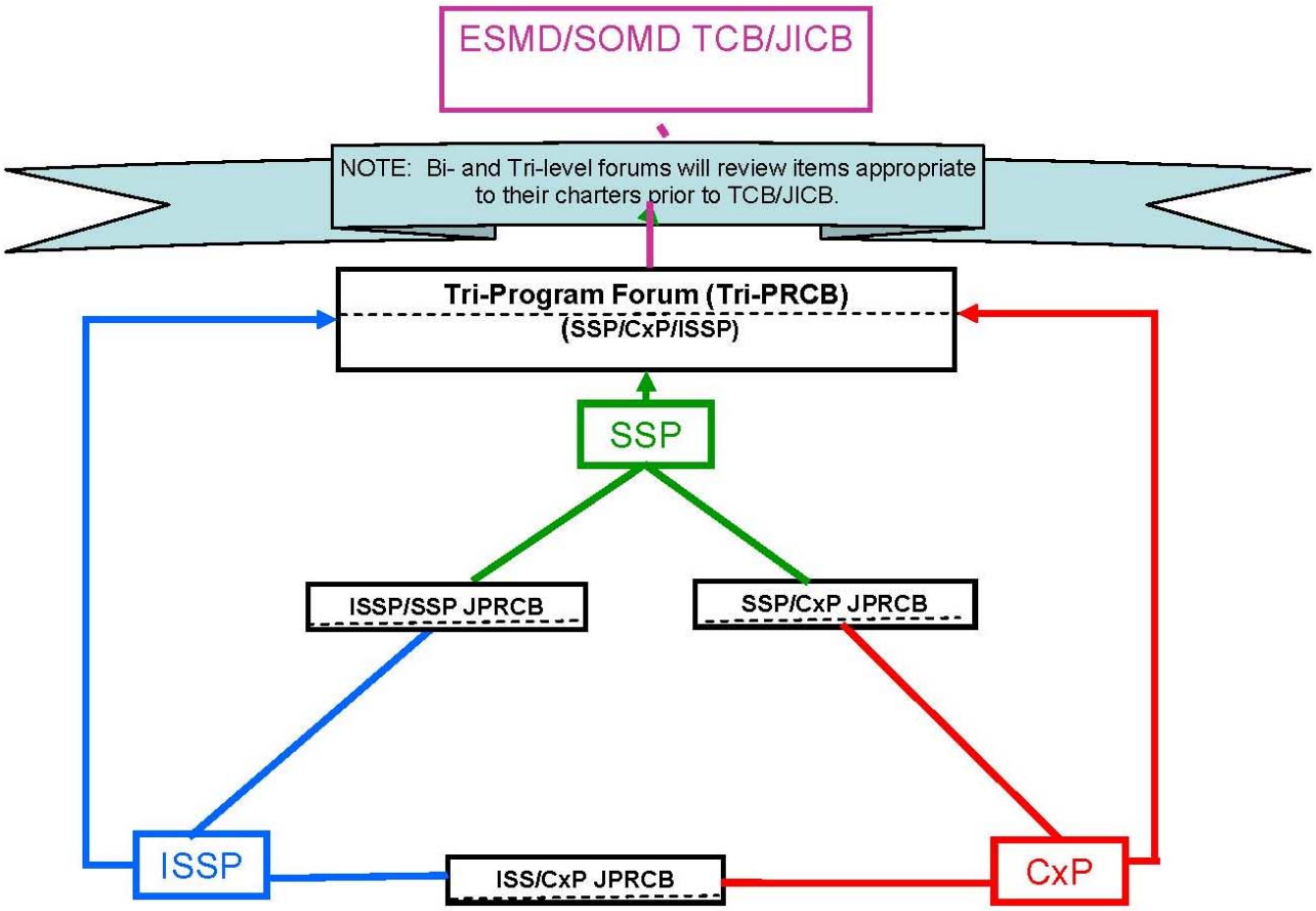

Figure 4-1 is focused on the processes that feed directly into the HQ-level decision making authorities and does not include the multiple, cross-cutting activities that are used to coordinate activities between the Programs and the Centers at Level III. The Tri-PRCB has the responsibility for reviewing T&R related topics that involve all three programs and their respective projects and elements prior to review by the TCB and Joint Integration Control Board (JICB), unless those topics are solely within the scope of one of the programs. TCB/JICB topics which pertain to only two programs will be reviewed by the bi-lateral form (Joint PRCB [JPRCB]) of that respective program.

4.3 T&R ROLES AND RESPONSIBILITIES

4.3.1 SSP Manager

a. The SSP Manager has overall responsibility for management of the SSP T&R.

b. The SSP Manager:

1. Appoints the SSP Transition Manager

2. Appoints the Shuttle transition support personnel

4.3.2 SSP Transition Manager

The SSP Transition Manager:

a. Provides overall SSP T&R leadership.

b. Acts as the primary interface for SSP T&R activities to the SSP Manager and to the TCB.

c. Chairs transition management reviews.

d. Manages SSP T&R cost, schedule and technical planning and performance.

4.3.3 SSP Transition Integration Manager

a. The SSP Transition Integration Manager performs SSP transition integration.

b. SSP Transition Integration includes:

1. Providing T&R-unique management tools

2. Defining the SSP T&R metrics requirements

3. Integrating and assessing element/project and institutional data and metrics

4. Developing and maintaining the integrated transition master schedule

5. Coordinating transition program reviews

6. Managing the Strategic Capabilities Assessments (SCAs)

7. Evaluate/Monitor consistency among the element/projects

8. Leads the Transition Integration Working Group (TIWG)

4.3.4 SSP T&R Center Leads

a. The SSP T&R Center Leads shall be the single point of contact for the SSP T&R activities at the centers.

b. The SSP T&R Center Leads shall:

1. Provide an interface between the institutional elements at the center and the resident element/project representatives to promote the use of existing and common processes and requirements and keep center management apprised of changing capabilities.

2. Provide an interface between the resident element/project representatives and the Program's T&R representatives to support integration of the resident element/project data and metrics.

3. Provide a T&R interface to other programs to ensure communication of SSP T&R activities, including capability last need dates.

4. Provide information regarding the status of activities, issues, or other T&R topics to the SSP Transition Manager as needed.

4.3.5 SSP Element/Project Managers

a. The SSP Element/Project Managers have the overall responsibility for management of each element/project T&R.

b. Each SSP Element/Project Manager shall appoint an SSP Element/Project Transition Manager.

4.3.6 SSP Element/Project Transition Managers

The Element/Project Transition Managers shall:

a. Manage the SSP element/project T&R cost, schedule and technical planning and performance and risk.

b. Support the SSP transition reporting requirements and program reviews.

c. Provide information regarding the status of activities, issues, and other T&R topics as requested by the Center Transition Lead and the SSP Transition Manager.

d. Provide SCA data as defined by the SSP Transition Manager.

e. Provide Shuttle Management Resource Transition (SMRT) documents, as needed, to support Agency decisions on SSP capability disposition. The SMRT document will be defined in the SSP T&R TMP.

f. Provide element/project representative support to T&R boards and teams, as appropriate.

4.4 CROSS-CUTTING TRANSITION REQUIREMENTS

The SSP T&R cross-cutting is an effort that manages, integrates, and assesses those functional areas that are common throughout the program, and that requires coordination across multiple centers, elements/projects, directorates, and/or external stakeholders/customers.

4.4.1 SSP Business Management Office (BMO) Cross-Cutting Transition Managers

The SSP BMO manages the following cross-cutting lead efforts:

a. Environmental

The Environmental Support Team (EST) communicates and provides technical support and guidance to the program and elements/projects in identifying and mitigating the environmental risk.

b. Human Capital

A key component of SSP capabilities is its human capital. During SSP T&R it will be important to both manage the retention of SSP personnel to complete mission execution and provide for an orderly transition of both civil servant and contractor personnel out of the SSP. The Human Capital cross-cutting function develops and implements the Program's Human Capital Management Plan, assists the elements/projects with the development and implementation of their individual Human Capital Management Plans, and maintains insight into human capital status throughout SSP T&R.

c. Property Management (Personal and Real)

A central element of SSP T&R is the disposition of a very large inventory of real and personal property. The Transition Property Management function establishes integrated element/project property requirements, processes and metrics, and provides an SSP T&R management interface to the center property management organizations that execute the federal property disposal process.

d. Risk Management

SSP T&R Risk Management provides special consideration for program risks unique to the T&R phase of the SSP life cycle. T&R risks will be managed in accordance with NSTS 07700, Volume XIX, Program Risk Management Plan.

e. Resources

T&R Resource Management (RM) uses existing program business management processes tailored to SSP T&R to guide and manage the SSP T&R Planning, Programming, Budgeting and Execution (PPBE) process.

4.4.2 Space Shuttle Management and Integration Planning Office Cross-Cutting Leads

The Space Shuttle Management and Integration Planning Office Transition Integration Manager manages the following cross-cutting lead efforts.

a. Artifacts

A NASA HQ Agency Space Shuttle Program Artifacts Working Group has been established to develop an overall approach and criteria for making artifact determinations and placement decisions in accordance with NPR 4310.1, Identification and Disposition of NASA Artifacts. The SSP provides representation and identification of potential artifacts to the working group. NASA HQ is partnering with the General Services Administration (GSA) to conduct prescreening of SSP artifacts by internal and external entities with the goal of making early predeterminations on the placement of artifacts. The goal of the early prescreening process is to address the unprecedented surge of excess property that will become available as the SSP comes to an end, and to ensure that historically significant Shuttle hardware is preserved. The property excess process will also identify artifacts for donation that were not captured in the prescreening process.

b. Communications

Based on early benchmarking studies, well-managed communications during T&R are essential to the maintenance of morale and successful transition. The Communications Management function develops and implements an SSP T&R communications plan and supports organizations that provide external communications by generating T&R information for stakeholders.

c. Information Technology (IT) Systems

The SSP IT Management function provides communication to support SSP, projects/elements, center institutional resources and mission directorate resources on the plans and progress of IT systems T&R. SSP IT resources are maintained until no longer required or are transferred to other program or institutional systems. In support of SSP T&R, IT Management:

1. Establishes and oversees the assessment process for SSP IT systems.

2. Ensures coordination of planning and disposition actions between the users, Information Management, Real and Personal Property Management, Records and Data Management, Procurement, and Security.

3. Manages the IT systems T&R risks.

d. Records and Data Management

The SSP Records and Data Management function ensures:

1. Accessibility of program technical, business and administrative data through the end of the SSP.

2. All documentation, including the SSP elements/project change traffic, associated with “legacy hardware” is transferred to the follow-on programs and that existing or follow-on programs have access to the data they require of retired elements/projects.

3. All official SSP records are properly archived with the National Archives at program termination. This enables an integrated program interface with HQ/center records managers and archivists and oversees the records and data management process for SSP transition.

e. Export Control

Each center/element/project is responsible for maintaining export compliance. This is an agency-level effort. Management and Integration Planning Office Export Control represents the SSP on an as-needed basis.

f. Historical Preservation

Historical preservation is an integral part of the property and environmental management functions. A NASA HQ Historic Preservation Working Group (HPWG) has been established to complete an agency-wide site survey to assess SSP real property for historic significance in compliance with the National Historic Preservation Act, and to support the SSP environmental assessment performed by the SSP EST.

4.5 CONTROL BOARD

The SSP T&R is governed under the SSP Program Requirements Control Board (PRCB).

4.6 ORBITER END-STATE REQUIREMENTS OVERVIEW

KSC will process each Orbiter from final landing through Ferry Flight delivery to the Orbiter’s final display site. Processing requirements/standards will be maintained with a mission emphasis on personnel safety, hardware preservation, safe Ferry Flight, and Orbiter safety for public display.

Each Orbiter will be maintained in flight status, until the Orbiter is officially released from Mission status. After the release from Mission status, the Orbiter will be processed for Ferry Flight and Display, which will be referred to as End-State. To configure

the Orbiter for End-State, specific requirements have been developed for each Orbiter to ensure a proper configuration for Ferry Flight and Display Site. The Orbiter's systems with hazardous commodities will be re-configured to implement End-State requirements for storage at KSC or ferry/transport to a display site. The Ferry Flight Certification of Flight Readiness (CoFR) process will be defined in NSTS 07700, Volume XX - Book 2, Appendix 08, Operations Closeout Requirements (TBS).

4.6.1 End-State Requirements Effectivity

Details associated with the starting point for the implementation of End-State Requirements in lieu of existing Shuttle Program requirements will be defined by the PRCB at a later date.

4.6.2 End-State Configuration Requirements

4.6.2.1 NSTS 60584, Orbiter Fleet Safing Document (OFSD)

The Orbiter Fleet Safing Document (OFSD) is a Program approved NSTS document establishing criteria for safe public display that provides a comprehensive list and graphic depictions of all active and passive hazards. The OFSD defines the plans to "safe" each Orbiter's hazardous subsystems and identifies minor hazards, with appropriate mitigations and precautions, for hardware that is left installed. The details of the safing requirements identified in the OFSD will be incorporated into NSTS 60585, End-State Subsystems Requirements Document (ESSRD).

4.6.2.2 NSTS 60585, End-State Subsystems Requirements Document (ESSRD)

The purpose of the ESSRD is to establish the detailed requirements to safe Orbiter subsystems, including fluid and component removals per the OFSD criteria. The ESSRD will also define the configuration of the subsystems for Ferry Flight (incorporating all applicable Ferry Flight drawing configuration and NSTS 08171, Operations and Maintenance Requirements Specifications Document [OMRSD] requirements within the ESSRD) and define safety related display site requirements.

4.6.2.3 Display Site Requirements

The purpose of the Display Site Requirements is to document unique Orbiter configurations driven by reallocation of specific flown artifacts and specific display site driven configuration. The Display Site Requirements will be in response to NASA Headquarters Artifact Control direction and Program approved unique display configurations.

4.6.2.4 Other/Programmatic Re-Use Requirements

The purpose of the Other/Programmatic Re-use Requirements is to establish requirements to remove components for Programmatic re-use by other NASA Programs/Projects.

4.6.2.5 Change Control

Changes to the above End-State Configuration Requirements (OFSD, ESSRD, Display Site Requirements, and Other/Programmatic Re-Use Requirements) will be approved by an NSTS Program designated Change Control Board (TBD).

4.6.3 Requirements Approval and Implementation

a. The Program approved OFSD establishes the Orbiter End-State Processing systems safing and mitigation requirements for safe public display of the Orbiter Fleet.

b. Based on OFSD criteria, the ESSRD will establish each Orbiter's End-State requirements and will be the basis for work instructions generated by KSC to implement Orbiter End-State configuration and safing operations.

c. Neither Orbiter nor mission kits drawings will be generated or modified to reflect End-State configuration.

d. The ESSRD is generic to OV-103, OV-104, and OV-105 End-State Processing and will be presented to, and authorized by, the PRCB approximately 90 days prior to the landing of the first non-Launch on Need (LON) Orbiter to achieve its final flight.

e. Display Site Requirements will be established per direction from NASA Headquarters Artifact Control and Program designees for unique Orbiter display configurations and will not violate safety or ferry requirements. The Display Site Requirements will be approved by an NSTS Program designated Change Control Board (TBD).

f. Orbiter End-State Requirements/Flow Reviews will be conducted prior to the initiation of End-State Processing for specific Orbiter configuration and requirements updates, and review of flow planning.

g. ESSRD and Display Site Requirements will be worked on KSC Work Authorization Documents (WADs) during each Orbiter's End-State flow. The KSC Work Control plan shall ensure that WADs are generated to satisfy these requirements.

h. For corrective changes to the ESSRD that are within scope of the original requirement, Work Instructions can be dispositioned in a manner similar to the Engineering Order To Follow (EOTF) process used on the Space Shuttle Program. This will be documented as an ESSRD-To-Follow (ETF) within the Work Instruction and tracked within the Cradle application. These ETF changes are

intended to avoid delays by resolving problems encountered during the Work Instruction authoring process or during implementation. The ETF will be followed up with an actual change to the ESSRD.

4.6.4 Closed Loop Requirements Verification

ESSRD, Display Site Requirements, and Other/Programmatic Re-Use Requirements will be verified utilizing a "Closed Loop" KSC Configuration and Requirements Verification System (Cradle) in lieu of existing systems (e.g., Mission Requirements Control System [MRCS], Configuration Verification Accounting System [CVAS], and OMRSD/ Operations and Maintenance Plan [OMP]). This supports the Program Ferry Flight review process and Ferry Flight CoFR.

FIGURE 4-2

END-STATE REQUIREMENTS PROCESSING

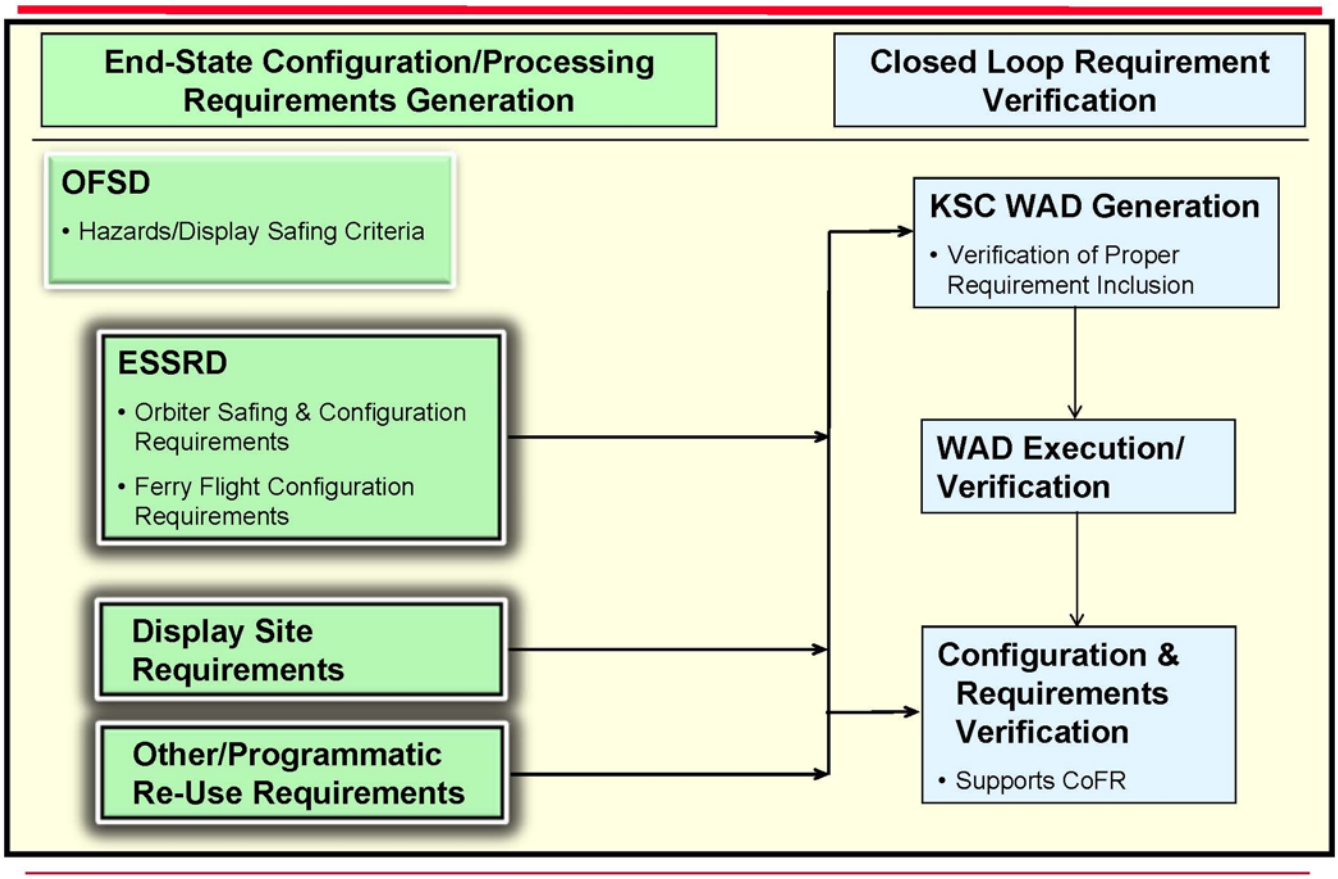

Figure 4-2 graphically depicts the generation of the End-State Requirements and the closed-loop verification of those requirements.

5.0 ACRONYMS AND ABBREVIATIONS

AA	Associate Administrator
BMO	Business Management Office
CoFR	Certification of Flight Readiness
CR	Change Request
CVAS	Configuration Verification Accounting System
CxP	Constellation Program
EOTF	Engineering Order To Follow
ESMD	Exploration Systems Mission Directorate
ESSRD	End-State Subsystem Requirements Document
EST	Environmental Support Team
ET	External Tank
ETF	ESSRD-To-Follow
FY	Fiscal Year
GSA	General Services Administration
HPWG	Historic Preservation Working Group
HQ	Headquarters (NASA)
ISSP	International Space Station Program
IT	Information Technology
JICB	Joint Integration Control Board
JPRCB	Joint Program Requirements Control Board
L&L	Launch and Landing
LON	Launch on Need
MRCS	Mission Requirements Control System
OFSD	Orbiter Fleet Safing Document
OMP	Operations and Maintenance Plan

OMRSD	Operations and Maintenance Requirements Specifications Document
OPR	Office of Primary Responsibility
PCA	Program Commitment Agreement
PPBE	Planning, Programming, Budgeting and Execution
PRCB	Program Requirements Control Board
PRCBD	Program Requirements Control Board Directive
RM	Resource Management
RSRM	Reusable Solid Rocket Motor
SCA	Strategic Capabilities Assessment
SMC	Strategic Management Council
SMRT	Shuttle Management Resource Transition
SOMD	Space Operations Mission Directorate
SRB	Solid Rocket Booster
SSME	Space Shuttle Main Engine
SSP	Space Shuttle Program
T&R	Transition and Retirement
TBD	To Be Determined
TBS	To Be Supplied
TCB	Transition Control Board
TIWG	Transition Integration Working Group
TMP	Transition Management Plan
WAD	Work Authorization Document

6.0 GLOSSARY OF DEFINITIONS

Agency - National Aeronautics and Space Administration.

Asset - A generic term for property (real or personal) with positive value as well as human capital, data, software, and information.

Capability - In the context of SSP T&R, a capability is the combination of human capital, tangible assets (real and personal property, data, intellectual property), and intangible assets (climate, security, access, location, history, synergism) that, when combined, provide the potential to produce information, goods, or services.

Center - NASA field installation that holds responsibility for SSP property or personnel during their disposition (either transfer or disposal).

Cost Estimate - A predictive assessment of the resources (funds, full-time equivalents) that will be required to accomplish a task(s), project, or purchase request.

Disposal - Orderly elimination of property according to the established government excess property process that includes sales, donations, scrap and demolition.

Disposition - The performance of a unique step or sequence of steps required to accomplish a specific task.

Elements - Refers to SSP elements which are established under separate project offices (e.g., Orbiter, Space Shuttle Main Engine [SSME], External Tank [ET], Reusable Solid Rocket Motor [RSRM], Solid Rocket Booster [SRB], Launch and Landing [L&L]).

Human Capital - People and their capabilities, expertise, skills, knowledge, education, training, experience, health, and motivation that form their ability to be economically productive and provide customer solutions.

Institutional - The organization that provides multi-program support but is not considered part of any program, e.g., human resources.

Inventory - Quantity of goods, materials, skills, etc. on hand.

Last Need Date - The last date a specific item, process, tooling, etc. is required to complete a required task.

Mission Execution - The ground and flight activities that are required to safely fly the Space Shuttle through the last flight. This includes additional programmatic activities to cope with risk inherent in program termination, such as incentive programs, employment transition support, heightened communication, and increased quality assurance surveillance. Mission execution also includes a strategic assessment process to determine, in detail, when SSP capabilities are no longer needed to fulfill mission requirements.

Retirement - The facilitation of the appropriate disposition of unneeded capabilities through defined agency processes.

Strategic Capabilities Assessment - An SSP program-wide activity to review all SSP assets and human capital to determine their last need date to safely support the SSP flight schedule.

Transfer - The act of moving an SSP asset physically to a new location as part of its disposition. Its disposition can be disposal via the federal excess property process, delivery to a different program, or handover to a host center for storage/mothballing. Transfer can also be a static process of changing financial and operational responsibility from SSP to another organization without any physical movement.

Transition - The SOMD process of restructuring from the SSP to multiple manned and unmanned space flight vehicles and programs under the guidelines of NPR 7120.5D, NASA Space Flight Program and Project Management Requirements.

Transition Management - Provides direction for priority activities to ensure the effective management of the project elements during the SSP transition period; oversees and directs the transition processes, actions, and timetable for activities to be achieved.