

TECHNICAL INSTRUCTIONAL GUIDANCE DOCUMENT

VERSION: 1.3

TITLE: SHIP CHANGE DOCUMENT (SCD)

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1.0 SCOPE:

This specification provides criteria for the uniform preparation, processing, and approval of a Ship Change Document (SCD).

1.1 APPLICABILITY:

This specification is applicable to carriers, surface ships, and surface craft SCDs and shall be utilized by all personnel for preparing, processing and maintaining SCDs.

1.2 REQUIREMENTS:

All of the following requirements apply to the preparation of a SCD. This document provides step-by-step instructions for the preparation of a SCD. The amount of detail to be provided in the SCD will depend on the complexity of the proposed change or modification and should be determined by the submitter.

1.3 Responsibilities:

User or Role-Type	Description	SCD Phase Duties/Actions
Initiator/Initiating POC	Creator of the SCD	Phase I – Creates the SCD, fills-out header, sections 1-5, 9-14 of SCD. May delete SCD if desired. Hands-off SCD to Submittal Review.
Technical POC	Technical Point of Contact	All Phases – Receives email notification of status transitions. Reviews technical aspects of SCD.
PARM POC	PARM Point of Contact	All Phases – Receives email notification of status transitions. Reviews SCD.
TYCOMs POC	TYCOMs Point of Contact	All Phases – Receives email notification of status transitions. Reviews SCD.
Submitter POC	Submitter Point of Contact	All Phases – Receives email notification of status transitions. Reviews and edits all sections of SCD including the CBA Spreadsheet, but excluding any Technical, SHIPMAIN, SPM or Review-Board blocks. Submits SCD to TAT Review.
TAT CM	Technical Assessment Team Change Manager	All Phases – Groups and notifies TAT team. Enters Tech-CM Comments and checks Tech-CM complete checkbox. Submits SCD to SPM Review.

User or Role-Type	Description	SCD Phase Duties/Actions
TAT Member	Technical Assessment Team Member	All Phases – Reviews SCD and enters Tech-Comments.
AFOM CM	Alteration Figure of Merit Change Manager (AFOM CM)	All Phases – Groups and notifies AFOM team. Enters AFOM Comments and checks AFOM-complete checkbox. Submits SCD to FMP Review state.
AFOM Member	AFOM Member	All Phases – Enters AFOM Comments. Reviews and edits AFOM Spreadsheet figures.
CBA CM	Cost Base Analysis Change Manager (CBA CM)	All Phases – Groups and notifies CBA team. Enters CBA Comments and checks CBA-complete checkbox. Submits SCD to FMP Review state.
CBA Member	CBA Member	All Phases – Enters CBA comments.
FMP Reviewer	Fleet Modernization Program Reviewer	All Phases – Groups and notifies Resource Sponsor team, O-6 Review Team, 1 & 2 Star Review Team and 3-Star Review Team. Fills-out Review-Board block of SCD. May disapprove and move SCD to Stopped state. May recommend next-phase to complete current phase, and move SCD into Submittal Review state of next phase. May approve Phase III SCD to move SCD into Completed state.
Resource Sponsor	Resource Sponsor	All Phases – Selects Modernization Plan Yes/No checkboxes of Recommended Change Package (RCP) associated with SCD. Once all Resource Sponsors have checked Modernization Plan checkbox, SCD is moved to FMP Board Review state.

Note: Definitions of all pertinent terms used in the SCD may be found in Subsection 3.0 Definitions.

2.0 SHIP CHANGE DOCUMENT (SCD) PROCEDURES

2.1 SCD Phase I Technical Specifications

Phase I is defined as a Conceptual Idea, with minimal engineering involved.

Note: Executive Summary, Description of Proposed Change, and Impact if not accomplished should not contain repetitive information.

SCD Phase I should be completed as follows:

- a. **Ship Change Title (Block 1).** Ship change title will identify the ship change in no more than 100 characters. This title will be used throughout the life of the change and cannot be altered.
- b. **Applicable Ship/Ship Class/Sites (Block 2).** List of all ships, ship classes, and selected shore sites as applicable. The user will have an option to choose multiple ship classes or shore sites. Shore sites will not include unique requirements. Drop down menus will be provided as a selection tool for ship, ship classes and sites.
- c. **Recommended SCD (Block 3).** Identifies the scope, category, duration and funding for the proposed change. User shall check all boxes that apply.
- d. **Points of Contact (POC) (Blocks 4-8).** All Points of Contact require the following format:
 - Name: Last Name, First Name
 - Activity
 - Code
 - Phone: xxx-xxx-xxxx
 - Email

All information is required for each POC. The POC block with the TBD box checked may be completed by a listed POC or by the Technical Assessment Team. Note: POCs' not selected from drop down menus will not receive automatic notification.

- e. **Executive Summary (Block 9).** User shall provide a summary (100 words max) of the ship change that will be used to describe the change throughout the entitled process.
- f. **Description of Proposed Change (Block 10).** Description (4,000 character max) provides a brief scope of the proposed change, including alternatives that may have been considered the technical risk, and why the proposed change is preferable. List equipment to be added and/or deleted. Discuss compensation that could be accomplished concurrently with this proposed change, in order to minimize or offset the weight, moment, or space impact of the proposed installation. Discuss interfaces with existing shipboard systems, including functional interfaces (diagrammatic) and physical interfaces. Include references to any other amplifying information or data, if available, as attachments or notes in the Comment tab.

- g. Impact if not accomplished (Block 11).** Addresses the impact (no more than 100 words) to equipment, system, ship, site, or fleet readiness if the ship change is not accomplished. Include references to any other amplifying information or data, if available, as attachments or notes in the Comment tab.
- h. Requirement and Justification of Proposed Change (Block 12).** User shall check all applicable boxes, cite requirements, and note deficiencies or explanations for each item checked.
- i. Distributive Systems/Other Impacts (Block 13).** Identify elements listed that will be affected or changed (Check all that apply).
- j. Alteration Figure of Merit (AFOM) Information (Block 14).** Includes a list of the 61 Naval Capabilities as outlined in the NAVAL POWER 21 Transformation Roadmap. User shall select one or more of the applicable Naval Capabilities. A minimum selection of one Naval Capability is required. For Hull, Mechanical and Electrical (HM&E) systems select a capability under SEA Base”. Once the SCD is complete and the user selects ‘submit’ or “send”, the system will provide the following prompt with regard to AFOM, “Are all references and or links to references provided in the comment block for Type Commander (TYCOM) Reference and Assessment?” with a Yes/No select button. If No, the TYCOM may enter data, if YES, the SCD is locked from further manipulation until the next phase. Items of note for this block include:
- All Eleven Suitability Rating Scales will be embedded into the SCD under this section. Write permission will be given to the TYCOM points of contact. View permission will be given to the submitter.
 - The TYCOM points of contact will enter the suggested ratings under the Suitability scales; an “Accept” and “Reject” button will be provided by each scale for the TYCOM to provide a final assessment on the suggested scale. If “Reject” is selected by the TYCOM, Navy Data Environment (NDE) will prompt the TYCOM with the following alert “Please select a new index”. Once the index is selected, the option to “Accept” or “Reject” will be provided again for each scale.
 - The Naval Capabilities that are selected in Phase I will remain selected for Phase II. The submitter may change these selections in Phase II or III, but a prompt shall be provided that states “Are you sure you wish to change the selected Naval Capabilities?” with a “yes”/”no” select button.
 - Selected capabilities may not be changed once the SCD is submitted and/or assessed by the TYCOM.
 - TYCOM points of contact are defined as COMNAVSURFOR, COMNAVAIRFOR and NAVNETWARCOM N6 and N43 codes.
- k. Concept Development Cost Information (Block 15).** See Subsection 2.1.1 for procedures for completing the cost spreadsheets.

The Blocks that follow do not require further Initiator input. They are endorsement/comments/recommendation/approval blocks to be completed by the appropriate authority. They are described here for information purposes only.

- l. Submitter Endorsement (Block 16).** Provides a check by an approved activity that the SCD has been completed and the information is accurate. The reason for rejection of the SCD is provided. There is a checklist provided in NDE and on the Fleet Modernization Program (FMP) website to help guide a submitter through this process.
- m. Technical Assessment (Block 17).** Provides the required outputs from the Nuclear Propulsion Directorate (if required), technical assessment team (TAT) change manager and the TAT for review by the SPM.
- n. Ships Program Manager (SPM) Recommendation (Block 18).** This is an endorsement by the SPM. A not recommended by the SPM does not stop the processing of this document. It is only a recommendation that should be considered by the review boards.
- o. Alteration Figure of Merit (AFOM) Assignment (Block 19).** The AFOM assigned (or Recommended Rework) block will be checked and comments filled in by the appropriate TYCOM. All other portions of Block 18 are auto filled.
- p. Cost Benefit Analysis (CBA) Review (Block 20).** The CBA analysis complete (or Recommended Rework) block will be checked and comments filled in by the assigned lead review team members. All other portions of Block 19 are auto filled.
- q. Review Board Approval (Block 21).** Documents decisions made by the O-6, 1&2 Star, and 3 Star Review Boards that determine the status of the ship change.

2.1.1 Characteristics of Parent/Child SCDs

Characteristics of the Parent/Child SCD relationship include the need for change and are based on one of the following purposes:

- Capability
- Acquisition Spiral Development
- Software Maintenance Builds and Upgrades
- Life Cycle Sustainment Support
- Total Ownership Cost Reduction

The SCD Submitter may utilize a Parent/Child relationship for the following:

- At Acquisition Category (ACAT) Program Inception (MS A) when only a description of the required capability and acquisition strategy is known:
 - Interface Control Drawing (ICD), but no overall acquisition strategy or Capability Definition Document (CDD(s))
 - Material or technical solutions are not yet developed

- When the structure of the Program is anticipated to be complex e.g. multiple increments, spiral development or historically-large numbers of changes are required over the life cycle of the Program
 - Example: Software intensive programs using a Software Support Activity (SSA)
- When minimum-sustainment funding is required over the life-cycle of the Program to provide basic In-Service Engineering Agency (ISEA)/Life Cycle Support services:
 - Emergent software patches, CASREP Support
 - Hardware Design Agents
 - Maintenance and upgrades of previously approved software

2.1.2 **Initiating Parent/Child SCDs**

The SCD Submitter will complete a Phase I SCD as usual, except for the following:

- Check the Parent block on the SCD form
- In the Description block of the SCD, describe the plan upon which the parent SCD, including schedule and costs, is based
- Applicable classes/ships/sites block: if exact installations are not known, enter all that currently host the Hardware (HW)/Software (SW)/Firmware (FW) covered by the SCD
- Executive Summary: include the statement that this SCD is a Parent and will be installed via other SCDs (its Children) – include justification for using a Parent SCD
- CBA input:
 - Complete SCD funding profile based on best estimate of production and ship installation schedule
 - Include a note detailing the estimation basis for the parent; note that children will provide exact production and installation schedule

The SCD will be completed as usual, except for the following:

- Check the child SCD block and add the SCD number of the Parent SCD
- In the Description block, annotate that this is a Child SCD and enter the SCD number of the Parent SCD.
- Check only the AFOM applicable to the child, not all that may have been checked on the parent SCD
- CBA input: include a note that all funds are provided under SCD # _____ (insert the Parent SCD Number)

- Any emergent Children will have to follow the established Emergent procedures documented in Section 3 of the Surface Ships and Carriers Entitled Process (EP) For Modernization Management and Operations Manual.

Closeout of Children SCDs will be accomplished in accordance with the standard EP procedures as defined in Subsection 3-7.5 of the Surface Ships and Carriers Entitled Process (EP) For Modernization Management and Operations Manual. The Parent SCD cannot be closed until all of the Children SCDs have been closed.

2.1.3 Non –Permanent Changes

1. Fill out a Phase I or II SCD (Based on Initiators and Submitters evaluation of the maturity) listing a class(s) of ships in which this change will be installed. If specific hulls are known, user can provide this data.
2. Phase I (If Applicable):
 - A. Provide Data on SCD.
 - B. Provide Cost Data as outlined on the SCD for all applicable ships.
 - C. Submit SCD for TAT Review
 - D. A TAT review will be conducted and forwarded to the SPM with their recommendation. (This review will ensure the change is technically sound, interoperable, and properly scheduled.)
 - E. SPM will review and provide a recommendation and forward the SCD.
 - F. There will be no AFOM or CBA review. In the interim process, they will be stamped as completed with the following comment “This is a Non-Permanent Change (NPC) and no review was conducted.”
 - G. Resource Sponsor will indicate if funding is available and will forward to the review board.
 - H. Review boards will approve/disapprove installation of the change on the hulls indicated on the SCD.
 - a. If approved, the NPC will be moved to Phase II.
 - b. If not approved, the SCD will be closed and the NPC will not proceed.
3. Phase II:
 - A. For the interim software, the user will put 9999 in the “CFC” block.
 - B. Provide required data on SCD, including the installation and removal dates.
 - C. Submit SCD and Plan of Action & Milestones (POA&M) (In the interim system the POA&M will have to be provided via email or via a hard copy to the TAT change manager)
 - D. Provide cost data as outlined on the SCD for all applicable ships.
 - E. Submit SCD.
 - F. A TAT review will be conducted and forwarded to the SPM with their recommendation. (This review will ensure the change is technically sound, interoperable, and properly scheduled.)
 - G. SPM will review, provide a recommendation, and forward the SCD.
 - H. There will be no AFOM or CBA review (although a CBA will have to be submitted reflecting total cost of the NPC effort). In the interim process, they will

- be stamped as completed with the following comment “This is an NPC and no review was conducted.”
- I. Resource Sponsor will indicate if funding is available and forward to the review board.
 - J. Review boards will approve/disapprove installation of the change on the hulls indicated on the SCD.
 - a. If approved, the NPC is approved to fund the installation and moved to Phase IV of the Entitled Modernization Process.
 - b. If not approved, the SCD will be closed and the NPC will not proceed.
4. All milestones must be met or a risk assessment submitted prior to completion of Phase IV and approval to proceed to Phase V, installation.
 5. Upon completion of the test period, the user will choose one of the following options and provide the required information to complete the NPC (In the interim the Phase III SCD will be completed and shall indicate the status of the SCD as outlined below):
 - A. NPC has been removed
 - a. Test results
 - b. Actual Costs
 - c. Actual Date Removed
 - B. NPC testing completed - recommend making permanent change:
 - a. Phase III SCD will be completed for detailed design, and submitted for procurement/installation approval.
 - b. Some of the major areas that must be updated are:
 - 1) Assign classes and hulls for Program Of Record (POR) installations to SCD.
 - 2) Expand on Executive Summary, Description of Change, Impact if not Accomplished and all Distributive Systems impacts. (If needed for mature design information and maturity impacts based upon a successful installation). Should include test results.
 - 3) Provide AFOM data.
 - 4) Provide complete cost data as outlined in the CBA.
 - c. Submit SCD into the review process for SHIPMAIN approval/disapproval to procure and install change.
 - 1) If approved, NPC will be become a permanent change be moved into Phase IV for completion of the EP milestones prior to installation of the change.
 - 2) If disapproved, the board will require the NPC be removed and the SCD resubmitted with removal information.
 6. Interim Process Closeout:
 - A. Until such time as the EP baseline SW is available in NDE-NM, the following process should be followed for scheduling and completion reporting of a NPC:
 - B. Documentation of a NPC is achieved using the TMP & RMV alt types in NDE legacy. The original installation should be shown against the TMP (which should

be created by the SPM) with scheduling and completion dates using legacy processes. The RMV record is created when the TMP is created and scheduled and should be used to document the removal.

2.1.4 CBA CSW Input for SHIPMAIN SCD – Phase I

2.1.4.1 General Guidance:

This guidance refers to the CBA Cost Structure Worksheet (CSW) for the SHIPMAIN SCD “Concept Development Cost Information” section for Phase I (Item 15). There are four sections of the CSW for each of the three phases: (1) investment cost by work breakdown structure element; (2) appropriation and program element funding; (3) projected savings and cost avoidance associated with the change; and (4) installation fielding plan data. In the first phase of the SHIPMAIN process, these cost estimates are broad, high-level cost estimates that may become summary level categories comprised of sub-categories later in the SHIPMAIN process.

Portions of the CBA CSW will be locked. Data entry cells are colored orange or green, and are the only cells that can be edited. Orange cells require generic data entry (i.e., cost estimate, projected savings, or production units), where cost entries are in thousands of dollars. References in this document made to “FYXX” apply to any and/or all fiscal year (FY) columns ranging from FY05 through FY14 in Then Year Dollars (TY\$) column of the CSW. Green cells are the To Complete (Constant Year dollars) column, which is a column for entries past the 10th FY without inflation, also in thousands of dollars. These estimates are required ONLY when funds for a ship change extend beyond FY14 in the To Complete (Then Year dollars) column (orange cells) and the To Complete (Constant Year Dollars) column (green cells). The initiator/submitter (herein referred to as “user”) must confirm this estimate is necessary. If any funds in years beyond FY14 are required for the ship change, the user must group the estimates together into a lump sum and a separate calculation must be done for de-escalating the cost estimates past FY14. This value is entered in the To Complete (Constant Year dollars) column (green cells). In order to calculate or recalculate estimated cost value cells and save information at any time, click the “Save” button in NDE.

Any sections (i.e., rows or columns of data) that are not applicable to the Ship Change should remain blank. A check box is provided for each section for verification that it has been completed. When this check box is “checked”, any cell left blank will result in a null value upon submittal to NDE. NDE may reject the SCD submission if the user fails to check all check boxes. Instructional “Notes” appear above cost sections to help the user. These notes are colored dark orange. There are also “error” cells, which appear in white cells next to, above, or below cells, rows, or columns in question (i.e., where an incorrect value is entered). Concise explanations appear in nearby cells to explain the error and provide guidance to correct the problem. However, in order to receive a consistent level of information sequentially (i.e., from top to bottom), this guide is provided to help explain what cost values are required in each block and provide a more thorough explanation of any error.

2.1.4.2 Section 1—Investment Costs

1. Enter estimated cost values for System/Equipment Procurement Cost, Design Development, Preliminary Engineering, Design Development, and Installation/Checkout Cost rows in applicable FYXX and To Complete (Then Year dollars) columns. The estimated cost value is a future dollar value calculated by taking the cost estimate inflating the values with the corresponding FY inflation factor. This manual calculation must be done for every applicable FYXX. If funds extend beyond FY14, it is necessary to calculate and enter a de-escalated cost estimate in To Complete (Constant year dollars) column (green cells). Consult current Navy Financial Management and Budget (FMB) guidance to determine appropriate inflation factors.
2. Check the check boxes to verify this section is completed.
3. Click “Save” to save changes in NDE.

NOTE: Error messages will appear after completing the Investment Costs section. The reason for this error message is because the Subtotal row for Investment Costs (Section 1) must equal the Subtotal row for Appropriation/Program Element Funding Plan (Section 2) for each FYXX column, which has not been completed yet. Continue to Section 2, and revisit errors in the Appropriation/Program Element Funding Plan section.

2.1.4.3 Section 2—Appropriation/Program Element Funding Plan

1. Enter estimated cost value by completing the following steps:
 - a. *APPN*: Click “Add” to select the appropriation from the drop-down menu
 - b. *Sponsor*: Select sponsor information from a drop-down menu
 - c. *BLI*: Enter Budget Line Item (BLI) information as text/numerals
 - d. *PE*: Enter Program Element (PE) information as text/numerals
 - e. Enter estimated cost value for applicable FYXX and To complete (Then Year dollars) columns.
 - f. If funds extend beyond FY14, it is necessary to calculate and enter an de-escalated cost estimate in To complete (Constant year dollars) column (green cells). Consult current Navy FMB guidance to determine appropriate inflation factors.
 - g. *NOTE*: Repeat steps a. thru f. for additional funding lines as appropriate
2. Repeat steps a. thru f. for Phase 2 (Design Development), Phase 3 (Procurement Design Development), and Phase 4 (Installation).
3. Identify any error messages that remain in Appropriation/Program Element Funding Plan (Section 2) of the CSW and locate which rows have a total(s) that are unequal.

Address errors for applicable FYXX, To complete (Then Year dollars), and To complete (Constant Year dollars) columns by adjusting values in either Investment Cost (Section 1) or Appropriation/Program Element Funding Plan (Section 2) so Subtotal rows contain accurate estimates and are equal. Section 2 is complete when all error messages for Section 1 and Section 2 Subtotal rows disappear.

4. Check the check box to verify this section is completed.
5. Click “Save” to save changes in NDE.

2.1.4.4 Section 3—Projected Savings and Cost Avoidance

1. Note: Savings should be represented by positive values in this section. Errors will occur if negative values are used. A savings or cost avoidance can be calculated only if a baseline comparison is possible. This section may not be skipped if a baseline comparison can be made. If a new system is being called for by the ship change, skip this section.
2. Enter estimated cost value for Development Phase, Production Phase, and Operating and Support row in applicable FYXX and To Complete (Then Year dollars) columns. If funds extend beyond FY14, it is necessary to calculate and enter a de-escalated cost estimate in To Complete (Constant year dollars) column (green cells).
3. Check the check box to verify this section is completed.
4. Click “Save” to save changes in NDE.

2.1.4.5 Section 4—Installation Fielding Plan Data

1. Note: In general, Total Production Units (TPUs) procured should be equal to the total number of installations. An error message will appear if Ship and Shore Total does not equal Total Production Units.
2. Enter estimated values for Total Production Units in applicable Prior, FYXX and To Complete (>FY14) (Number of Units) columns representing the number of units to be installed in each FY.
3. Skip Ship and Shore Total.
 - NOTE: *Ship and Shore Total* is a calculation row that calculates the sum of *Ship Quantity* units and *Shore Quantity* units.
4. Skip Ship Class Total Installations (Ship Quantity) total row.
5. Enter value for Ship Quantity row(s), if applicable. Applicable ship classes and specific ships for this change should only be listed.
 - NOTE: Repeat step 5 for all ships as required
6. Skip Shore Support and Spares Installations (Shore Quantity) total row.

7. Enter value for Shore Quantity row(s), if applicable. Applicable shore sites for this change should only be listed.
 - NOTE: Repeat step 7 for all shore site installations as required
8. Check the check box to verify this section is completed.
9. Click “Save” to save changes in NDE.

2.2 2.2 SCD Phase II Procedures

Phase II further defines the intent and scope of the change. This preliminary engineering will provide early details and possible material identification on the Ship Change.

Note: Executive Summary, Description of Proposed Change, and Impact if not accomplished should not contain repetitive information.

SCD Phase II should be completed as follows:

- a. **Block 1.** Shall be completed as detailed in the Phase I Technical Specification
- b. **Applicable Classes/Ships/Sites (Block 2).** Select as required. The system will automatically determine ships to be decommissioned within 5 years when the document is saved. Identified ships will require an Assistant Secretary of the Navy (ASN) waiver to proceed. The SECNAV approval information must be provided.
- c. **Blocks 3 – 9.** Shall be completed as detailed in the Phase I Technical Specification
- d. **Distributive Systems/Other impacts (Block 10).** User shall input new, and verify and/or update the information input in Phase I. Check appropriate box:
 - Note: If data is unknown at this time, it must be provided in Phase III.
 - If available, estimated units (e.g. WATTS, BTU/hr, et. al.) should be provided as recommended in subsection 3.0.
 - **Other Considerations.** User shall input, verify, and/or update the information. If a consideration is selected, the user must provide details of identified items in 800 characters or less.
- e. **Shock, Vibration, Electromagnetic Interference (EMI) Requirements, RF Management, and RADHAZ (Block 11).** Remarks must identify requirements and/or documents for a user’s choice (Note: Remarks must not contain Classified/NOFORN information for a SCD not identified as such in the Header). All references assume the latest version (e.g., In Accordance With (IAW) MIL STD web page, OPNAV Note 5500, etc).
- f. **Integrated Logistics Support (ILS) impacts (Block 12).** No other information, except for identifying that there was an ILS Impact, was provided in Phase I. User shall input detailed information where installation of this change will affect the ILS elements. All SCDs will need to have an ILS Certification. If an SCD does not affect

any ILS, a Certification will still need to be submitted stating that no ILS Certifications are needed. All ILS Certifications will need SPM approval.

- g. **Human Systems Integration (HSI) Impacts (Block 13).** Submitter shall input, verify, and/or update expected areas of HSI impact on Sailor Performance, Safety and Personnel Survivability as can currently be determined. Include any planned analysis such as Human Factor Engineering (HFE) tradeoffs, manning or workload analysis, usability testing etc. The questions to be addressed are: Does the design take full advantage of the benefits of Human Systems Integration? Have Hardware, Software, and People been integrated into an efficiently operating Total System? Refer to DODI 5000.2 for more detailed requirements on HSI planning. If an impact is selected, the Submitter must provide details of identified items in 800 characters or less.
- h. **Critical Material (Block 14).** This data field will allow for the configuration identification of the Hardware Systems Command (HSC) material to be installed. The items listed in this field should be the same as those that will be listed in the P1 funding line in NDE and all known material requirements. Once approved, this material will be entered into the NDE-NM Material List.
- i. **Prior or Concurrent Change Accomplishment (Block 15).** The Submitter is to list any prior (must be accomplished before the base change can be accomplished for the changes to operate as designed), concurrent (must be done at the same time for the changes to operate as designed), or after (changes must be accomplished after the base change is made) changes required for this ship change.
- j. **Expanded Ship Work Breakdown Structure (ESWBS) (Block 16).** The Submitter is to enter one ESWBS Number selected from NAVSEA Website <http://www.ref.navy.mil>, which is most closely associated with the system, component or structure being impacted by the change. This ESWBS is to be to the 5th level (ex. 15092).
- k. **Detail Design Criteria (Block 17).** The Submitter checks all applicable boxes (and/or adds other) noting the design criteria to be used for the change.
- l. **Prototype Required (Block 18).** The purpose of a Prototype is to ascertain that the intended purpose of the change is satisfied and to identify any deficiencies so that immediate corrective action can be initiated. This block shall be filled in for temporary changes, proofing changes, and prototypes. If Yes, the Approximate Time Required on Board must be completed.
- m. **Blocks 19 – 20.** Shall be updated/completed as similar items are detailed in the Phase I Technical Specification
- n. **Concept Development Cost Information (Block 21).**

2.2.1 CBA CSW Input for SHIPMAIN SCD – Phase 2

2.2.1.1 General Guidance

This guidance refers to the CBA CSW for the SHIPMAIN SCD “Concept Development Cost Information” section for Phase II.

Portions of the CBA CSW will be locked. Data entry cells are colored orange or green, and are the only cells that can be edited. Orange cells require generic data entry (i.e., cost estimate or projected savings, or production units), where cost entries are in thousands of dollars. References in this document made to “FYXX (TY\$)” apply to any and/or all fiscal year (FY) columns ranging from FY05 through FY14 in Then Year Dollars (TY\$) column of the CSW. Green cells are the To Complete (Constant Year dollars) column, which is a column for entries past the 10th FY without inflation, also in thousands of dollars. These estimates are required ONLY when funds for a ship change extend beyond FY14 in the To Complete (TY\$) column (orange cells) and To Complete Constant Year Dollars column (green cells). The user must confirm this estimate is necessary. If any funds in years beyond FY14 are required for the ship change, the user must group the estimates together into a lump sum and a separate calculation must be done for de-escalating the cost estimates. This value is entered in the To Complete (Constant Year dollars) column (green cells). Most cells will be filled in with estimated cost values, and text entry cells are identified in this document when required. Click the “Save” button in NDE at any time to calculate or recalculate estimated cost value cells and save information.

Any sections (i.e., rows or columns of data) that are not applicable to the Ship Change should remain blank. A check box is provided for each section for verification that it has been completed. When this check box is “checked”, any cell left blank will result in a null value upon submittal to NDE. NDE may reject the SCD submission if the user fails to check all check boxes. Instructional “Notes” appear above cost sections to help the user. These notes are colored dark orange. There are also “error” cells, which appear in white cells next to, above, or below cells, rows, or columns in question (i.e., where an incorrect value is entered). Concise explanations appear in nearby cells to explain the error and provide guidance to correct the problem. However, in order to receive a consistent level of information sequentially (i.e., from top to bottom), this guide is provided to help explain what cost values are required in each block and provide a more thorough explanation of any error.

2.2.1.2 Section 1—Investment Costs

1. System/Equipment Procurement Cost

NOTE: For System/Equipment Procurement Cost row, the Phase 1 cumulative amount that was entered must be itemized as Hardware Cost, Installation Material, Testing (Production/Post-production), HSI, ILS, Topside Analysis/Design, Documentation (Provisioning Technical Documentation (PTD)), Certifications, Battle Force Interoperability Studies, Stability Analysis and Studies, and Program Management costs in Phase 2. System/Equipment Procurement Cost row is now a

calculation row that totals Hardware Cost, Installation Material, Testing (Production/Post-production), HSI, ILS, Topside Analysis/Design, Documentation (PTD), Certifications, Battle Force Interoperability Studies, Stability Analysis and Studies, and Program Management. Enter estimated cost value for categories that are applicable to the Ship Change.

- a. Enter estimated cost value for Hardware Cost row in applicable FYXX (TY\$) and To Complete (TY\$) columns. If funds extend beyond FY14, it is necessary to calculate and enter a de-escalated cost estimate in To Complete (Constant year dollars) column (green cells). Consult current Navy FMB guidance to determine appropriate inflation factors.
 - b. Enter estimated cost value for Installation Material row in applicable FYXX (TY\$) and To Complete (TY\$) columns. For all following cost estimate line items, use previous instructions for determining if costs should be entered into the “To Complete” columns.
 - c. Enter estimated cost value for Testing (Production/Post-production) row in applicable FYXX (TY\$) and To Complete (TY\$) columns
 - d. Enter estimated cost value for *HSI* row in applicable *FYXX (TY\$)* and *To Complete (TY\$)* columns.
 - e. Enter estimated cost value for Integrated Logistics Support (“ILS” or “Logistics”) row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - f. Enter estimated cost value for Topside Analysis/Design row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - g. Enter estimated cost value for Documentation (PTD) row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - h. Enter estimated cost value for Certifications row in applicable FYXX (TY\$) and To Complete (TY\$) columns
 - i. Enter estimated cost value for Distributed Systems Impact row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - j. Enter estimated cost value for Battle Force Interoperability Studies row in applicable FYXX (TY\$) and To Complete (TY\$) columns. .
 - k. Enter estimated cost value for Stability Analysis and Studies row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - l. Enter estimated cost value for Program Management row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - m. Check the check box to verify this section is completed.
 - n. Click “Save” to save changes in NDE.
2. System/Equipment Design/Development Cost
- a. Refine estimated cost value for Concept Development row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - b. Refine estimated cost value for Preliminary Engineering row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
NOTE: For Design Development, the Phase 1 cumulative amount that was entered must be itemized as Software Development and Hardware Development

- costs in Phase 2. Design Development is now a calculation row that totals Software Development and Hardware Development costs.
- c. Determine an amount of the total estimated cost for Software Development in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - d. Determine the estimated cost for Hardware Development row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - e. Enter estimated cost value for Engineering Drawing Management (EDM)/Pre-production prototype row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - f. Enter estimated cost value for Testing row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - g. Enter estimated cost value for Program Management row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - h. Check the check box to verify this section is completed.
 - i. Click "Save" to save changes in NDE.

3. Installation/Checkout Cost

NOTE: For Installation/Checkout Cost row the Phase 1 cumulative amount that was entered must be itemized as Planning, Certification Cost, Design Services Allocation (DSA), Installation Cost, Incidental material (Naval Supervisory Activity (NSA)/Installing Activity (IA) Procured), and Total Ship Testing costs in Phase 2. Installation/Checkout Cost row is now a calculation row that totals Planning, Certification Cost, DSA, Installation Cost, Incidental material (NSA/IA Procured), and Total Ship Testing. Enter estimated cost value for the following sub-categories that are applicable to the Ship Change.

- a. Enter estimated cost value for Planning row in applicable FYXX (TY\$) and To Complete (TY\$) columns
- b. Enter estimated cost value for Certification Cost row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- c. Enter estimated cost value for DSA row in applicable FYXX (TY\$) and To Complete (TY\$) columns. Algorithms that can be used to determine cost values are provided for Program Executive Office (PEO) SHIPS and PEO CARRIERS in the Glossary of terms. Examples of DSA elements include:
 - i. Defense Printing Services SIB, etc.
 - ii. ACS/AWS TM
 - iii. Platform Management
 - iv. CSTOM
 - v. CSITP
 - vi. AWS TM Printing
 - vii. EOSS
 - viii. Radhaz/CAMs
 - ix. SCD Review
 - x. SID (SC Installation Drawings)
 - xi. BOM (Bill of Material)
 - xii. LAR (Liaison Action Record)

- xiii. DC (Damage Control)
- xiv. MDS (Miscellaneous Documentation Support)
- xv. PMS (Planned Maintenance System)
- xvi. SEMCIP/EIM
- xvii. PTD (Provisioning Technical Documentation)
- xviii. S/C (Shipcheck)
- xix. OSR (On-site Representative)
- xx. OSLR (On-site Logistics Representative)
- xxi. OSTR (On-site Technical Representative)
- xxii. SSR (Ship Selected Record)
- xxiii. COP (Configuration Overhaul Planning)
- xxiv. COSAL
- xxv. DC Plates
- xxvi. CDMD-OA
- xxvii. SCLISIS Processing
- xxviii. CDM (Configuration Data Management)
- xxix. PM Program/Project Management
- xxx. Integrated Test Plan
- xxxi. RADHAZ
- xxxii. Avail Planning
- xxxiii. Avail Analysis
- xxxiv. CSOSS

This DSA list is representative and not all inclusive.

d. Skip Installation Cost row.

NOTE: Installation Cost row calculates a total installation cost by summing three items: 1) Alteration Installation Team (AIT) costs; 2) Special Services costs; and 3) a "Shipyard cost". Errors denote that an installation location has not been entered yet, which is required for calculating a Shipyard cost. Shipyard Costs are calculated by the Shipyard (NSA) Mandays number (e.g. the number of mandays To Complete the ship change for one ship) multiplied by the Installation Location (e.g. a shipyard-specific man-day rate). The Installation Cost row cannot calculate properly without both an installation location for FYXX (TY\$) and a man-day rate (e.g., \$450) for To Complete (TY\$). Valid installation locations are: East Coast, West Coast, Bath, Groton, Norfolk, Newport News, Jacksonville, Pascagoula, Ingleside, New Orleans, San Diego, Puget Sound, Pearl Harbor, or if unknown, Notional is the potential rate.

- e. Enter estimated number of mandays for Shipyard (NSA) Mandays row in applicable FYXX (TY\$) and To Complete (TY\$) columns. If values are entered here, Installation Location is required.
- f. Refine estimated cost value for AIT row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- g. Refine estimated cost value for Special Services row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- h. If Shipyard (NSA) Mandays were entered, type in a valid installation location, if necessary, for applicable FYXX (TY\$) columns for Installation Locations row. If

funds extend beyond FY14, it is necessary to manually enter a man-day rate (e.g., \$450) for To Complete (TY\$).

NOTE: Installation location is necessary for calculating a total installation cost that is shipyard specific for any FYXX (TY\$) column. Installation location cannot apply for To Complete (TY\$) because multiple locations may exist for ship changes that occur beyond FY14. As a result, this column requires an estimated man-day rate (e.g., \$450) that is not shipyard specific be manually entered. Errors will disappear when this step is completed, and an Installation cost sum will calculate.

- i. Revisit to Installation Cost row to enter inflation-adjusted cost estimate in To Complete (Constant Year dollars). Consult current Navy FMB guidance to determine appropriate inflation factors.
- j. Enter estimated cost value for Incidental material (NSA/IA Procured) row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- k. Enter estimated cost value for Total Ship Testing row in applicable FYXX (TY\$) and To Complete (TY\$) columns
- l. Check the check box to verify this section is completed.
- m. Click “Save” to save changes in NDE.

NOTE: Error messages will appear after completing the Investment Costs section. The reason for this error message is because the Subtotal row for Investment Costs (Section 1) must equal the Subtotal row for Appropriation/Program Element Funding Plan (Section 2) for each FYXX (TY\$) column, which has not been completed yet. Continue to Section 2, and revisit errors in the Appropriation/Program Element Funding Plan section.

2.2.1.3 Section 2—Appropriation/Program Element Funding Plan

1. APPN: Click “Add” to select the appropriation from the drop-down menu
2. Sponsor: Select sponsor information from the drop-down menu
3. BLI: Enter BLI information as text/numerals
4. PE: Enter PE information as text/numerals
5. Enter estimated cost value for applicable FYXX (TY\$) and To Complete (TY\$) columns.
6. If funds extend beyond FY14, it is necessary to calculate and enter an inflation-adjusted cost estimate in To Complete (Constant year dollars) column (green cells). Consult current Navy FMB guidance to determine appropriate inflation factors.

NOTE: Repeat steps 1. thru 6. for additional funding lines as appropriate

- a. Repeat steps 1. thru 6. for Phase 2 (Design Development), Phase 3 (Procurement Design Development), and Phase 4 (Installation).
- b. Identify any error messages that remain in Appropriation/Program Element Funding Plan (Section 2) of the CSW and locate which rows have a total(s) that are unequal. Address errors for applicable FYXX (TY\$), To Complete (TY\$),

- and To Complete (Constant Year dollars) columns by adjusting values in either Investment Cost (Section 1) or Appropriation/Program Element Funding Plan (Section 2) so Subtotal rows contain accurate estimates and are equal. Section 2 is complete when all error messages for Section 1 and Section 2 Subtotal rows disappear.
- c. Check the check box to verify this section is completed.
 - d. Click “Save” to save changes in NDE.

2.2.1.4 Section 3—Projected Savings and Cost Avoidance

Note: Savings should be represented by positive values in this section. Errors will occur if negative values are used. A savings or cost avoidance can be calculated only if a baseline comparison is possible. This section may not be skipped if a baseline comparison can be made. If a new system is being called for by the ship change, skip this section by checking the check box.

1. Development Phase
 - a. Adjust cost values for Development Phase row in applicable FYXX (TY\$) and To Complete (TY\$) columns from Phase 1 estimate. Enter updated values.
2. Production Phase
 - a. Adjust cost values for Production Phase row in applicable FYXX (TY\$) and To Complete (TY\$) columns from Phase 1 estimate. Enter updated values.
 - b. MILPERS Workload Reduction (Man-years)
 - i. Enter estimated cost value for the O-level Labor rate cell.
 - ii. Enter estimated cost value for the I-level Labor rate cell.
 - iii. Enter estimated number of man-years for Organizational level personnel row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - iv. Enter estimated number of man-years for Intermediate level personnel row in applicable FYXX (TY\$) and To Complete (TY\$) columns.

3. Operating and Support

NOTE: For Operating and Support row, a high-level amount was entered in Phase 1. This estimate must be further refined and identified separately into sub-categories in Phase 2. Operating and Support row is now a calculation row that totals Level/Mission Personnel, Unit-Level Consumption, Intermediate Maintenance, Depot Maintenance, Contractor Support, Sustaining Support, Indirect Support, and Other. Enter estimated cost value for the following sub-categories that are applicable to the Ship Change.

- a. Skip O-Level/Mission Personnel cost row NOTE: O-Level/Mission Personnel row is a calculation row that calculates a total O-Level/Mission Personnel cost by multiplying O-Level labor rate by the Organizational level personnel number of man-years entered in the MILPERS reduction section above.
- b. Enter estimated cost value for Unit-level consumption row in applicable FYXX (TY\$) and To Complete (TY\$) columns.

- c. Skip Intermediate-Level Maintenance cost row NOTE: Intermediate-Level Maintenance cost row is a calculation row that calculates a total Intermediate Maintenance-Level cost by multiplying I-Level labor rate and MILPERS Intermediate level personnel number of man-years.
- d. Enter estimated cost value for Depot Maintenance row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- e. Enter estimated cost value for Contractor Support row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- f. Enter estimated cost value for Sustaining Support row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- g. Enter estimated cost value for Indirect Support row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- h. Enter estimated cost value for Other row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- i. Identify and address any errors that may exist in Projected Savings and Cost Avoidance (Section 3).
- j. Check the check box to verify this section is completed.
- k. Click “Save” to save changes in NDE.

2.2.1.5 Section 4—Installation Fielding Plan Data

1. After this section is complete, the number of TPUs procured should be equal to the total number of installations for each Prior, FYXX, and To Complete (>FY14) (Number of Unit) columns. An error message will appear if Ship and Shore Total does not equal Total Production Units.
2. Adjust values for Total Production Units from Phase 1 estimates applicable Prior, FYXX and To Complete (Number of Units) columns representing the number of units to be installed in each FY.
3. Skip Ship and Shore Total. NOTE: Ship and Shore Total is a calculation row that calculates the sum of Ship Quantity units and Shore Quantity units.
4. Skip Ship Class Total Installations (Ship Quantity) total row.
5. Adjust number of unit estimates for Ship Quantity row(s) in applicable Prior, FYXX and To Complete (>FY14) (Number of Units) columns for applicable ship classes and specific ships.
6. Repeat Step E for all ships as required
7. Skip Shore Support and Spares Installations (Shore Quantity) total row.
8. Adjust number of unit estimates for Shore Quantity row(s) in applicable Prior, FYXX and To Complete (>FY14) (Number of Units) columns for applicable shore sites.
9. Repeat Step H for all shore site installations as required

10. Identify and address any errors that may exist in Installation Fielding Plan Data (Section 4). Ship and Shore Total must equal Total Production Units entered.
11. Check the check box to verify this section is completed.
12. Click “Save” to save changes in NDE.

2.3 2.3 SCD Phase III Technical Procedures

This phase further defines the requirements for a Phase III SCD. This phase is designed to accomplish the detailed design, identify material, complete or identify when a certification is completed.

Note: Executive Summary, Description of Proposed Change, and Impact if not accomplished should not contain repetitive information.

SCD Phase III should be completed as follows:

- a. **Blocks 1– 8.** Shall be completed as detailed in the Phase I Technical Specification
- b. **Description of Change (Block 9).** The Description field shall provide a description of the change to the extent necessary to begin detailed design. The description of the change shall indicate the spaces, systems and equipment impacted by the change and the extent of the impact. The description shall specifically address equipment to be added (Government or installing activity furnished) and/or deleted and the impact (increase or decrease) on power (steam generation, electrical generation and/or distribution systems), fluids (water, hydraulic, dry air, lubricating oil, fuel oil, etc.), compressed gasses (oxygen, nitrogen, etc.), firemain, ship's structure, interior communications circuits, habitability/accommodations, stowage, heating, ventilation and air conditioning. The description shall also specifically address, by space name and compartment number, any impact (increase or decrease) in weight and heat dissipation. Changes impacting SUBSAFE systems or equipment as defined in NAVSEA 0924-062-0010 (SUBSAFE Manual) shall include in the description field a statement identifying the systems and equipment as SUBSAFE. An explanation of how the SUBSAFE boundaries are impacted and how the SUBSAFE integrity will be maintained shall also be included in this field. Mandatory locations and interface requirements shall be supported by sketches and/or referenced documentation. Include references to any other amplifying information or data, if available, as attachments or notes in the Comment tab.
- c. **Block 10.** Shall be completed as detailed in the Phase I Technical Specification
- d. **System/Equipment Designation (Block 11).** Input system/equipment (e.g., AN or Mk Mod nomenclature).
- e. **Model No. (Block 12).** Input system/equipment model number as appropriate
- f. **Cage Code (Block 13).** Input system/equipment CAGE Code as appropriate.

- g. **Blocks 14 and 15.** Shall be completed as detailed in the Phase II Technical Specification
- h. **Distributive Systems/Others Impact (Block 16).** Describe impacts on systems not detailed in the distributive systems impact section: power (steam generation, electrical generation and/or distribution systems), fluids (water, hydraulic, dry air, lubricating oil, fuel oil, etc.), compressed gasses (oxygen, nitrogen, etc.), ship's structure, air systems, and interior communications switchboards/multiplex systems, and combat system switchboards. Mission Essential Systems must "justify/describe" their vital power requirements in Description of change. Units should be provided as recommended in subsection 3.0.
- i. **Blocks 17 and 18.** Shall be completed as detailed in the Phase II Technical Specification
- j. **References/Supporting Documentation (Block 19).** This field is a list of all of the documents referred to in the description. The documents shall be entered in the order of their occurrence in the description and designated with a numerical reference number. Include references to any other amplifying information or data, if available, as attachments or notes in the Comment tab.
- k. **Estimated Weight and Moment (Block 20).** The Weight and Moment Impact field shall provide an estimate of any weight and moment change caused by the SC (increase or decrease), including loads (ammunitions, provisions, stores, fuel oil, water, etc.). Weight shall be estimated to the nearest +/- 0.1 long ton (the term "Negligible" shall not be used for the weight estimate); Vertical Center of Gravity (VCG) to the nearest foot, Longitudinal Center of Gravity (LCG) to the nearest foot forward or aft of the mid perpendicular of the ship, and the Transverse Center of Gravity (TCG) to the nearest foot port or starboard of the centerline. If the SC includes modification to a hull form or an appendage (bilge keel, sonar dome, etc.), a buoyancy (stability statement) impact of the weight of the displaced water volume shall also be estimated to the nearest +/- 0.1 long ton. As part of the stability statement, add stability status.
- l. **Change Material/Software List (Block 21).** List all the material (system, equipment, parts, supporting material, etc.) required for the installation of the change.
- m. **Special Disposition Requirements for Removed Material (Block 22).** This field will contain a list of all removed material requiring special disposition, the disposition required and assignment of responsible activity.
- n. **Block 23.** Shall be completed as detailed in the Phase I Technical Specification
- o. **Additional, Non-Standard Quality Assurance Requirements (Block 24).** This field lists the system or equipment specific Quality Assurance requirements.
- p. **Installation Support and Test Equipment (Block 25).** This field will list all the Support and Test Equipment (S&TE) that is required to support the installation of the change (Jigs, Alignment, I/D level TE) (The S&TE required for ships force to

trouble-shoot, test measure, calibrate and maintain the equipment is listed in the ILS Cert).

- q. **Shipboard Stowage Details (Block 26)**. This field provides the details, if any, on whether or not installation of this change will require any impact to shipboard Stowage, including Hazardous Material (HAZMAT) and segregated stowage requirements.
- r. **NAVSEA Ship Installation Drawing (SID) Review Required (Block 27)**. The submitter shall indicate if NAVSEA SID review is required.
- s. **Special Industrial Stowage Requirements (Block 28)**. This field will list all special stowage requirements at the industrial activity installing the change. This section should include but not be limited to requirements such as environmental or security stowage.
- t. **Block 29**. Shall be completed as detailed in the Phase I Technical Specification
- u. **Installation Duration (Block 30)**. Submitter shall enter an estimate for the length of time needed to install this change.
- v. **Block 31**. Shall be completed as detailed in the Phase II Technical Specification.
- w. **Certifications/Qualifications as required (Block 32)**. The certifications will be performed and date noted as required. If the certification is scheduled, a date will be provided for completion. Completion, and dates, of certifications/qualifications should be noted.
- x. **Concept Development Cost Information (Block 33)**. Concept Development Cost Information shall be accomplished IAW Section 2.3.1.
- y. **Blocks 34-38**. Shall be updated/completed/processed as similar items are detailed in Phase II SCD.

2.3.1 CBA CSW Input for SHIPMAIN SCD – Phase 3

2.3.1.1 General Guidance

Portions of the CBA CSW will be locked. Data entry cells are colored orange or green, and are the only cells that can be edited. Orange cells require generic data entry (i.e., cost estimate or projected savings, or production units), where cost entries are in thousands of dollars (which include inflation). References in this document made to “FYXX (TY\$)” apply to any and/or all fiscal year (FY) columns ranging from FY05 through FY14 in Then Year Dollars (TY\$) column of the CSW. Green cells are the To Complete (Constant Year dollars) column, which is a de-escalation column, also in thousands of dollars. These estimates are required ONLY when funds for a ship change extend beyond FY14 in the To Complete (TY\$) column (orange cells). The user must confirm this estimate is necessary. If any funds in years beyond FY14 are required for the ship change, the user must group the estimates together into a lump sum and a separate calculation must be done for de-escalating the “Then-Year Dollars.” This value is

entered in the To Complete (Constant Year dollars) column (green cells). Most cells will be filled in with estimated cost values, and text entry cells are identified in this document when required. Click the “Save” button in NDE at any time to calculate or recalculate estimated cost value cells and save information.

Any sections (i.e., rows or columns of data) that are not applicable to the Ship Change should remain blank. A check box is provided for each section for verification that it has been completed when it is “checked”, and any cell left blank will result in a null value upon submittal to NDE. There are “error” cells, which appear in white cells next to, above, or below cells, rows, or columns in question. Concise explanations appear in nearby cells to explain the error and provide guidance to correct the problem. However, in order to receive a consistent level of information sequentially (i.e., from top to bottom), this guide is provided to help explain what cost values are required in each block and provide a more thorough explanation of any error.

2.3.1.2 Section 1—Investment Costs

13. System/Equipment Procurement Cost

- a. For System/Equipment Procurement Cost section, the Phase 2 itemized amounts that were entered must be refined. Enter estimated cost value updates for categories that are applicable to the Ship Change.
- b. Refine estimated cost value for Hardware Cost row in applicable FYXX (TY\$) and To Complete (TY\$) columns. The estimated cost value is a future dollar value calculated by taking the cost estimate and inflating it with the appropriate FY inflation factor. This manual calculation must be done for every applicable FYXX (TY\$). If funds extend beyond FY14, it is necessary to calculate and enter an inflation-adjusted cost estimate in To Complete (Constant Year dollars) column (green cells). Consult current Navy FMB guidance to determine appropriate inflation factors.
- c. Refine estimated cost value for Installation Material row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- d. Refine estimated cost value for Testing (Production/Post-production row in applicable FYXX (TY\$) and To Complete (TY\$) columns.

NOTE: HSI row was a high-level amount that was entered in Phase 2. Refine estimated cost value for sub-categories of HSI that are applicable to the Ship Change.

- e. Determine an estimated cost value for Training/Training Support row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- f. Determine an estimated cost value for Manpower/Personnel row in applicable FYXX (TY\$) and To Complete (TY\$) columns.

- g. Refine estimated cost value for HFE (Habitability, ESOH, Personnel Survivability) row in applicable FYXX (TY\$) and To Complete (TY\$) columns.

NOTE: Logistics row was a high-level amount that was entered in Phase 2. Refine estimated cost value for sub-categories of Logistics that are applicable to the Ship Change.
- h. Determine an estimated cost value for Special Tools/Test Equipment/MAMS row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- i. Determine an estimated cost value for Facilities row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- j. Determine an estimated cost value for PHS&T (Special Handling) row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- k. Determine an estimated cost value for Support Equipment row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- l. Refine estimated cost value for Topside Analysis/Design row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- m. Refine estimated cost value for Documentation (PTD) row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- n. Refine estimated cost value for Certifications row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- o. Refine estimated cost value for Distributed Systems Impact row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- p. Refine estimated cost value for Battle Force Interoperability Studies row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- q. Refine estimated cost value for Stability Analysis and Studies row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- r. Refine estimated cost value for Program Management row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- s. Check the check box to verify this section is completed.
- t. Click "Save" to save changes in NDE.

14. System/Equipment Design/Development Cost

- a. Refine estimated cost value for Concept Development row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- b. Refine estimated cost value for Preliminary Engineering row in applicable FYXX (TY\$) and To Complete (TY\$) columns

- c. Skip Design Development row.

NOTE: For Design Development, the Phase 2 itemized amounts that were entered must be refined in applicable FYXX (TY\$) and To Complete (TY\$) columns in Phase 3.

- d. If necessary, enter inflation-adjusted cost estimate for Design Development row in To Complete (Constant Year dollars).
- e. Refine estimated cost value for EDM/Pre-production Prototype row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- f. Refine estimated cost value for Testing row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- g. Refine estimated cost value for Program Management row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- h. Check the check box to verify this section is completed.
- i. Click "Save" to save changes in NDE.

15. Installation/Checkout Cost

NOTE: For Installation/Checkout Cost row the Phase 2 cumulative amount that was entered was itemized as Planning, Certification Cost, DSA, Installation Cost, Incidental material (NSA/IA Procured), and Total Ship Testing costs, and should be refined in Phase 3. Refine estimated cost value for the following sub-categories that are applicable to the Ship Change.

- a. Refine estimated cost value for Planning row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- b. Skip Certification Cost row.

NOTE: For Certification Cost, the Phase 2 cumulative amount that was entered must be itemized as ILS Certification and HSI Certification costs in Phase 3. Certification Cost is now a calculation row that totals ILS Certification and HSI Certification costs.

- c. Determine an estimate cost value for ILS Certification in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- d. Determine an estimate cost value for HSI Certification in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- e. Revisit Certification Cost row. If necessary, enter inflation-adjusted cost estimate for Certification Cost row, which is a total calculation for both ILS Certification and HSI Certification costs, in To Complete (Constant Year dollars). Consult current Navy FMB guidance to determine appropriate inflation factors.

- f. Refine estimated cost value for Design Services Allocation (DSA) row in applicable FYXX (TY\$) and To Complete (TY\$) columns. Algorithms that can be used to determine cost values are provided for PEO SHIPS and PEO CARRIERS in the Glossary of terms. Skip Installation Cost row.

NOTE: Installation Cost row calculates a total installation cost by summing three items: 1) AIT costs; 2) Special Services costs; and 3) a "Shipyard cost". Errors denote that an installation location has not been entered yet, which is required for calculating a Shipyard cost.

- g. Shipyard Costs are calculated by the Shipyard (NSA) Mandays number (e.g. the number of mandays To Complete the ship change for one ship) multiplied by the Installation Location (e.g. a shipyard-specific man-day rate). The Installation Cost row cannot calculate properly without both an installation location for FYXX (TY\$) and a man-day rate (e.g., \$450) for To Complete (TY\$). Valid installation locations are: East Coast, West Coast, Bath, Groton, Norfolk, Newport News, Jacksonville, Pascagoula, Ingleside, New Orleans, San Diego, Puget Sound, Pearl Harbor, or if unknown, Notional is the potential rate. Refine estimated number of mandays for Shipyard (NSA) Mandays row in applicable FYXX (TY\$) and To Complete (TY\$) columns. If values are entered here, Installation Location (Step 39) is required.
- h. Refine estimated cost value for AIT row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- i. Refine estimated cost value for Special Services row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- j. If Shipyard (NSA) Mandays were entered, type in a valid installation location and refine, if necessary, for applicable FYXX (TY\$) columns for Installation Locations row. If funds extend beyond FY14, it is necessary to manually enter a man-day rate (e.g., \$450) for To Complete (TY\$). NOTE: Installation location is necessary for calculating a total installation cost that is shipyard specific for any FYXX (TY\$) column. Installation location cannot apply for To Complete (TY\$) because multiple locations may exist for ship changes that occur beyond FY14. As a result, this column requires an estimated man-day rate (e.g., \$450) that is not shipyard specific be manually entered. Errors will disappear when this step is completed, and an Installation cost sum will calculate.
- k. Revisit to Installation Cost row to enter inflation-adjusted cost estimate in To Complete (Constant Year dollars). Consult current Navy FMB guidance to determine appropriate inflation factors.
- l. Refine estimated cost value for Incidental material (NSA/IA Procured) row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- m. Refine estimated cost value for Total Ship Testing row in applicable FYXX (TY\$) and To Complete (TY\$) columns.

- n. Check the check box to verify this section is completed.
- o. Click “Save” to save changes in NDE.

NOTE: Error messages will appear after completing the Investment Costs section. The reason for this error message is because the Subtotal row for Investment Costs (Section 1) must equal the Subtotal row for Appropriation/Program Element Funding Plan (Section 2) for each FYXX (TY\$) column, which has not been completed yet. Continue to Section 2, and revisit errors in the Appropriation/Program Element Funding Plan section.

2.3.1.3 Section 2—Appropriation/Program Element Funding Plan

1. Refine information by completing the following steps:
 - a. APPN: Click “Add” to select the appropriation from the drop-down menu
 - b. Sponsor: Select sponsor information from the drop-down menu
 - c. BLI: Enter BLI information as text/numerals
 - d. PE: Enter PE information as text/numerals
 - e. Enter estimated cost value for applicable FYXX (TY\$) and To Complete (TY\$) columns.
 - f. If funds extend beyond FY14, it is necessary to calculate and enter an inflation-adjusted cost estimate in To Complete (Constant Year dollars) column (green cells). Consult current Navy FMB guidance to determine appropriate inflation factors.
 - g. NOTE: Repeat steps a. thru f. for other remaining funding lines as required
2. Repeat steps a. thru f. for Phase 2 (Design Development), Phase 3 (Procurement), and Phase 4 (Installation).
3. Identify any error messages that remain in Appropriation/Program Element Funding Plan (Section 2) of the CSW and locate which rows have a total(s) that are unequal. Address errors for applicable FYXX (TY\$), To Complete (TY\$), and To Complete (Constant Year dollars) columns by adjusting values in either Investment Cost (Section 1) or Appropriation/Program Element Funding Plan (Section 2) so Subtotal rows contain accurate estimates and are equal. Section 2 is complete when all error messages for Section 1 and Section 2 Subtotal rows disappear.
4. Check the check box to verify this section is completed.
5. Click “Save” to save changes in NDE.

2.3.1.4 Section 3—Projected Savings and Cost Avoidance

Note: Savings should be represented by positive values in this section. Errors will occur if negative values are used. A savings or cost avoidance can be calculated only if a baseline comparison is possible. This section may not be skipped if a baseline comparison can be made. If a new system is being called for by the ship change, skip this section.

6. Development Phase

NOTE: For Development Phase, the Phase 2 itemized amounts that were entered must be refined in Phase 3. This estimate must be further refined and itemized as Direct and Additional TOC elements rows in Phase 3.

- a. Determine an estimated cost value for Direct costs in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- b. Determine an estimated cost value for Additional TOC Elements row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- c. If necessary, enter inflation-adjusted cost estimate for Total Development Phase row in To Complete (Constant Year dollars). Consult current Navy FMB guidance to determine appropriate inflation factors.

7. Production Phase

NOTE: For Production Phase, the Phase 2 itemized amounts that were entered must be refined in Phase 3. This estimate must be further refined and itemized separately as Recurring, Non-recurring, and Additional TOC Elements rows in Phase 3.

- a. Determine an estimated cost value for Recurring in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- b. Determine an estimated cost value for Non-recurring in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- c. Determine an estimated cost value for Additional TOC Elements row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- d. If necessary, enter inflation-adjusted cost estimate for Total Production Phase row in To Complete (Constant Year dollars). Consult current Navy FMB guidance to determine appropriate inflation factors.

8. MILPERS Workload Reduction (Man-years)

- a. Refine estimated cost value for the O-level Labor Rate cell from Phase 2 values.
- b. Refine estimated cost value for the I-level Labor Rate cell from Phase 2 values.
- c. Refine estimated number of man-years for Organization level Personnel row in applicable FYXX (TY\$) and To Complete (TY\$) columns from Phase 2 values.

- d. Refine estimated number of man-years for Intermediate level Personnel row in applicable FYXX (TY\$) and To Complete (TY\$) columns from Phase 2 values.

9. Operating and Support

NOTE: For Operating and Support row, this estimate was refined and identified separately into sub-categories in Phase 2. Refine estimated cost value for the following sub-categories that are applicable to the Ship Change.

- a. Skip O-Level/Mission Personnel cost row. NOTE: O-Level/Mission Personnel row is a calculation row that calculates a total O-Level/Mission Personnel cost by multiplying O-Level labor rate by the Organizational-Level personnel number of man-years entered in the MILPERS reduction section above.
- b. Refine estimated cost value for Unit-level consumption row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- c. Skip Intermediate-Level Maintenance cost row. NOTE: Intermediate-Level Maintenance row is a calculation row that calculates a total Intermediate Maintenance cost by multiplying I-Level labor Rate by the Intermediate-Level Personnel number of man-years entered in the MILPERS reduction section above.
- d. Refine estimated cost value for Depot Maintenance row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- e. Refine estimated cost value for Contractor Support row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- f. Refine estimated cost value for Sustaining Support row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- g. Refine estimated cost value for Indirect Support row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- h. Refine estimated cost value for Other row in applicable FYXX (TY\$) and To Complete (TY\$) columns.
- i. Identify and address any errors that may exist in Projected Savings and Cost Avoidance (Section 3).
- j. Check the check box to verify this section is completed.
- k. Click “Save” to save changes in NDE.

2.3.1.5 Section 4—Installation Fielding Plan Data

After this section is complete, the number of TPUs procured should be equal to the total number of installations for each *Prior*, *FYXX*, and *To Complete (>FY14)* (*Number of Unit*) columns. An error message will appear if *Ship and Shore Total* does not equal *Total Production Units*.

1. Adjust values for Total Production Units from Phase 2 estimates in applicable Prior, FYXX and To Complete (Number of Units) columns representing the number of units to be installed in each FY.

2. Skip Ship and Shore Total.

NOTE: *Ship and Shore Total* is a calculation row that calculates the sum of *Ship Quantity* units and *Shore Quantity* units.

3. Skip Ship Class Total Installations (Ship Quantity) total row.
4. Adjust number of unit estimates for Ship Quantity row(s) in applicable Prior, FYXX and To Complete (>FY14) (Number of Units) columns for applicable ship classes and specific ships.

NOTE: Repeat Step 4 for all ships as required

5. Skip Shore Support and Spares Installations (Shore Quantity) total row.
6. Adjust number of unit estimates for Shore Quantity row(s) in applicable Prior, FYXX and To Complete (>FY14) (Number of Units) columns for applicable shore sites.

NOTE: Repeat Step 6 for all shore site installations as required.

7. Identify and address any errors that may exist in Installation Fielding Plan Data (Section 4). Ship and Shore Total must equal Total Production Units entered.
8. Check the check box to verify this section is completed.
9. Click "Save" to save changes in NDE.

2.3.1.6 Conclusion

Phase 3 of the CSW is now complete. Continue to Item 34 of the SCD.

2.4 Phase IV

The purpose of this phase is to complete/refine technical data for final design, initiate procurement, complete and validate certification/testing requirements, initiate/update Configuration Data Managers Database-Open Architecture (CDMD-OA) and 2-Kilo, complete hull integration, final validation of schedule and authorization to execute.

2.5 Phase V

The purpose of this phase is to complete installation and validation of the Ship Change and provide feedback/follow-up plan to required organizations by Hull.

3.0 DEFINITIONS

SCD Impacts Definitions

1. **Air Systems.** Systems, including components supporting generation, distribution and storage of low, medium and high pressure compressed air.
2. **Alteration Figure of Merit (AFOM).** The AFOM calculation is defined as the quantitative “Warfighting or Readiness Benefit” assigned to each proposed change. There are two components to the process of assigning AFOMs to each SCD; the annual establishing of weights based on Fleet priorities and the continuous action by respective TYCOMs to assign index values to standardized rating scales that address Suitability (Reliability, Maintainability, Operational Availability, Supportability, Quality of Service (QOS)/Quality of Life (QOL), Safety) and Capability (the scales are named for each of the Naval Capabilities established in the Naval Power 21 Pillars or Naval Capability Packages as noted below.) . On an annual basis, on or about October of the fiscal year, weights are assigned to an established hierarchical benefit structure modeled after the Naval Power 21 Operational Architecture and Suitability Structure, as described in the business rules below. Separate from this annual event, TYCOMs continue to review and assign index values to the previously noted standard rating scales for each change as part of the throughput of SCDs. The TYCOM Rating Scale Index Value assignments are entered in NDE and, through an approved and weighted static algorithm based on the above described weighting process, are calculated to provide an overall AFOM and nested AFOMs which articulate the changes Capability, Suitability and QOS/QOL benefits to the SHIPMAIN Decision Board members. Note that every change described on a SCD undergoes at a minimum, a suitability Assessment and all HM&E SCDs undergo an additional assessment under the SEA Basing Naval Capability Package (Close, Assemble Employ and Reconstitute Naval Capability).
3. **Certification.** Certification is a comprehensive evaluation and the issue of a formal statement confirming the results of an evaluation, and that the evaluation criteria used were correctly applied to the technical and non-technical features and safeguards of hardware, software and people.
4. **Chilled Water.** System, including components supporting generation and distribution, which services components requiring fresh water chilled by refrigerant.
5. **Conjunctive Change.** A Conjunctive Change is one that must be accomplished prior to or with another SC for the system/equipment to operate as designed.
6. **Contract Defect.** Addresses the correction of defective specifications, unavailable Government Furnished Equipment (GFE), or unavailable Government Furnished Information (GFI). Requires a contract number and Contract Line Item Number (CLIN).
7. **Cost Benefit Analysis (CBA).** CBA a.k.a. BCA is a systematic quantitative method to compare the costs of implementing a specific project or course of action with the

benefits to be gained from implementation. In the SHIPMAIN process the CBA is used to compare the Investment Cost of an item to the potential savings or cost avoidance that that same item may provide. It is used in conjunction with the AFOM to provide the Decision Makers with criteria that will help them to decide the relative priority of one ship change with respect to all other ship changes being evaluated.

8. **COTS/NDI**. Commercial Off-the-Shelf item or Non Developmental Item.
9. **Damage Control System**. System that detects ship damage, and implements and monitors correction procedures.
10. **Electrical (60 Hz)**. System supplying 60 Hz electrical power including components which support power generation, conversion and distribution.
11. **Electrical (400 Hz)**. System supplying 400 Hz electrical power including components which support power generation, conversion and distribution.
12. **EMC/EMI**. Electromagnetic compatibility and interference control requirements need to be identified as integral to design, analysis, test and certification; and use, or non-use of the RF spectrum. Refer to appropriate MIL-STD-461/464 series and OPNAVINST 2400.20 for guidance on EMC/EMI and RF spectrum management requirements.
13. **Fiber Optic Cable Plant**. The Navy has a standard to provide detailed information and guidance to personnel concerned with the installation of fiber optic cable plants on naval surface ships and submarines. The fiber optic cable plant consists of all the fiber optic cables and the fiber optic interconnection equipment within the ship, including connectors, splices, and interconnection boxes.
14. **Fire Main**. System, including components that support distribution, which draws water from the sea, and services other sea water systems.
15. **FORCEnet**. The operational construct and architectural framework for Naval Warfare in the Information Age which integrates WARRIORS, sensors, networks, command and control, platforms and weapons into a networked, distributed combat force, scalable across the spectrum of conflict from seabed to space and sea to land
16. **Fuel System**. System, including components supporting distribution and storage, which supplies fuel for shipboard machinery and vehicles.
17. **HVAC**. Climate control including heating, ventilation and air conditioning, and components supporting generation and distribution.
18. **Human Systems Integration**.
 - **Manpower/Workload**. The minimum quantity and quality manpower required to accomplish 100% of the mission within the scenario defined in the ROC/POE for a given platform or activity consistent with human performance, workload, and safety requirements, and affordability, risk, and reliability constraints.

Manpower analysis should be conducted for any planned differences in workload for new systems.

- **Personnel.** The qualitative attributes of the manpower personnel on board filling the manpower requirements. Personnel factors include the knowledge, skills, and abilities, rating structures, physical constraints, and personnel management policies needed to execute required tasks.
 - **Training.** Training is the definition of instruction, education, and on the job or team training necessary to provide humans and teams with knowledge and job skills needed to support the system life cycle processes at the specified levels of performance. This includes the tools, devices (including embedded training systems), training simulators, techniques, procedures, and training materials and technical manuals to be developed and employed to provide training for all required tasks. Appropriate initial and follow on training should be planned and funded prior to system development and identified in appropriate Navy Training System Plan (NTSP).
 - **Human Factors Engineering (HFE).** Human factors engineering is defined as the application of human performance principles, models, measurements, and techniques to system design. The goal of human factors engineering is to optimize system performance by taking human physical and cognitive capabilities and limitations into consideration during design. HFE includes human-machine interfaces, ergonomics, usability, design for maintainability and situational awareness.
 - **Habitability.** Physical environment and support services that are necessary for meeting and sustaining system performance, avoiding personnel retention problems, maintaining quality of life, and minimizing total system costs.
 - **Environment, Safety and Occupational Health (ESOH).** Includes impacts to environment and safety and plans for mitigation of health hazards.
 - **Personnel Survivability.** For systems with missions that might expose it to combat threats, personnel survivability includes protection against fratricide, detection, and instantaneous, cumulative, and residual nuclear, biological, and chemical effects; the integrity of the crew compartment; and provisions for rapid egress when the system is severely damaged or destroyed.
19. **Initiator.** Any authorized user of NDE. Provides the initial data input in the SCD at Phase I.
20. **Integrated Logistics Support (ILS).** A disciplined approach to the activities necessary to ensure the effective and economical support of a system or item of equipment for its life cycle. The elements of ILS are design influence, maintenance, manpower and personnel, supply support, support equipment (including test, measurement, and diagnostic equipment), training and training devices, technical data, computer resources support, packaging handling and storage, transportation and

transportability, facilities, and standardization and interoperability. All SCDs will need to have an ILS Certification. If a SCD does not affect any ILS, a Certification will still need to be submitted stating that no ILS Certifications are needed. All ILS Certifications will need SPM approval.

21. **Interior Communications (IC)**. Equipment needed for interior communications within ships and shore facilities. These communications systems include, public address systems, interior telephone systems, alarm systems, engine telegraphs to communicate orders for changes in engine speed from the bridge (ship's command station) to the engine room, certain kinds of ship control and equipment monitoring devices, the ship's gyrocompass, the rudder position indicator, audio-visual equipment for the ship's TV entertainment systems, advanced navigation and various other equipment.
22. **Net Increase**. Positive change from existing baseline
23. **Net Decrease**. Negative change from existing baseline
24. **Networks**. A network is a broad term that can apply to any number of intricately interconnected or intersecting configuration or system of components, and/or multiple-computer interconnections, series of points or nodes interconnected by communication paths. Networks can be described in terms of its general configurations, spatial distance, the type of data transmission technology it possesses, whether it is public or private, and/or by the nature of its connections. (e.g. HM&E Network, C4I Network or Combat Systems Network).
25. **No Net Impact**. No change from existing baseline
26. **Participating Manager (PARM)**. The activity associated with completing the engineering, procurement and identification of life-cycle support for the ship change and its associated ship changes.
27. **Planned Maintenance System (PMS)**. PMS provides each ship with a simple standard means for planning, scheduling, controlling, and performing planned (preventive) maintenance on all equipment. It also includes inactive Equipment Maintenance. PMS documentation consists of:
 - **Maintenance Requirement Cards (MRCs)**, which provide detailed step-by step procedures detailing how and when each maintenance action is to be done
 - **Maintenance Index Pages (MIPs)**, which are an index of all MRCs for a specific system or equipment
 1. **Lists of Effective Pages (LOEPs)**, which are lists of all MIPs for a specific ship
 2. **PMS schedules**
 3. **Feedback Reports**

28. **Potable Water.** System supplying treated fresh water suitable for human consumption, including components supporting generation, distribution and storage.
29. **Prior/Concurrent/Conjunctive Alts.** Any change previously authorized or in development that has a direct impact on the change being approved and must be installed prior to, or concurrently with, the change.
30. **Proposed Military Improvement (PMI).** Approved/directed by OPNAV and are intended to increase the ship's ability to meet its Required Operational Capability (ROC).
31. **Proposed Survivability Improvement (PSI).** Approved/directed by OPNAV, and are intended to reduce the ship's susceptibility to defined threats, or to increase the ability to recover from damage.
32. **Provisioning Technical Documentation (PTD).** A listing of various types of data relating to a given system or equipment in a standardized format. PTD is supplied by the manufacturer and used for the identification, selection, and determination of initial requirements and cataloging of support items to be procured through the provisioning process.
33. **Reduction of Total Ownership Costs (R-TOC).** These initiatives address longstanding concerns about the adverse impact of defense budgetary and operational trends on force structure and readiness. Department of Defense (DOD) has directed Program Managers to achieve specific R-TOC goals in their programs. ROI and Payback Period will be calculated in NDE using data provided in the CBA forms.
34. **Restoring Margins.** Restoring system capacity (weight and kilogram (kg); electrical system; heating, ventilation and air conditioning; etc).
35. **Sea Basing.** Projecting Joint Operational Independence
36. **Sea Shield.** Projecting Global Defensive Assurance
37. **Sea Strike.** Projecting Precise and Persistent Offensive Power
38. **Software.** The programs or instructions that tell a computer what to do. This includes operating system programs, which control the basic functions of the computer system (such as Microsoft's Disk Operating System--"MS-DOS" --that controls IBM-compatible PCs) and applications programs, which enable the computer to produce useful work (e.g., a word processing program such as WordPerfect).
39. **Scope.** Type of change or arrangement variation from the approved class plan.
 - **Internal equipment modification** (changes are contained within the boundaries of the individual equipment/system and have limited system ramifications.)
 - **Ship modification** (any permanent change in hull, machinery, equipment, or fittings, which involves changes in design, material, quantity, location, or relationship of the component parts of an assembly.)

40. **Site Modification.** If choosing a shore site the ship change must also be applicable to a ship or ship class.
41. **System/Capability.** Change that integrates several changes to provide a desired functionality.
42. **Ships Characteristics Document.** Describes parameters associated with a ship and its equipment.
43. **Ship's Selected Records (SSR).** The documentation providing critical information concerning the maintenance, operation, and configuration of a ship. SSR consists of the following categories: Selected Record Drawings, which illustrate important features, systems, and arrangements applicable to an individual ship; Selected Record Data, which describes arrangements, equipment, systems and procedures essential to the operation and safety of the ship; and Allowance Lists.
44. **Shock Grade** (Refer to MIL-STD 901 for detailed definitions)
 - **Shock Grade "A"** - For vital Systems/Equipment; Must function after shock event
 - **Shock Grade "B"** - In spaces manned at General Quarters (GQ), housing A level equipment cannot be a hazard (Missile, Electrical, HAZMAT), structures on Mast/Island B minimum.
 - **Shock Grade "C"** - Any category not previously defined.
45. **Storage Requirements.** Indication whether or not installation of this change will require any use of shipboard stowage.
46. **Submitter.** Submitter is responsible and accountable for the all phases of the SCD. They will be the primary point of contact for questions or clarification throughout the process. Subsequent approvals, disapprovals, and notification to complete the next phase of the SCD will be forwarded to this point of contact
47. **SUBSAFE.** Indication of whether or not accomplishment of the change or change impacts a SUBSAFE boundary.
48. **Switchboards.** All changes must consider the impact to Combat Systems and Interior Communications switchboards.
49. **Test Equipment.** All equipment required to make a system, support system, sub-system, or end item of equipment operational in its intended environment. Support equipment includes portable or transportable devices needed to disassemble, assemble, transport, or adjust systems or equipment. Test equipment consists of any device used to measure, calibrate gauge, test, inspect, diagnose, or otherwise examine materials, supplies, and equipment to determine compliance with requirements established in technical documentation.

50. **Technical Manuals (TM).** TMs contain the information that the system or equipment user needs in order to operate and maintain the hardware as part of the ship's operational mission. A TM is the data interface between the hardware designer and the hardware user, containing operating instructions, troubleshooting and repair procedures.
51. **Technical Point of Contact.** Identifies person with detailed knowledge of change. Does not have to be the warrant holder.
52. **Topside.** The surface of a ship's hull above the main deck including antenna arrangement, combat system equipment locations and weapon firing arcs.
53. **Type Commander (TYCOM).** Lead Type Commander associated with the change.
54. **Weight and Moment.** Change in weight and distribution, and resulting change in ship's center of gravity.
55. **Weapons system.** A Weapons system is the complete set of interrelating pieces that function together to achieve the goal of destroying a target. The complete description of a weapons system must include all of the means of exchanging information between sub-systems, called communication systems; all means used to locate the target, called sensors; all means used to store, launch and deliver the weapon to the target, called delivery sub-systems; and all means used to inflict damage upon the target, called destruction sub-systems.