DMSMS CASE IDENTIFICATION AND RESOLUTION GUIDEBOOK

Prepared by:

Naval Supply Systems Command
NAVSUP N00AL

For Use by NAVSEA Program Managers
and
Affiliated Program Executive Offices (PEOs)

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1. INTRODUCTION

1.1. Purpose

This Diminishing Manufacturing Sources and Material Shortages (DMSMS) Case Resolution Procedures Guidebook is intended to provide assistance in both reactive and proactive DMSMS problem identification, analysis, and resolution. It provides a uniform and systematic approach to assist Naval Sea Systems Command (NAVSEA) programs in analyzing and resolving DMSMS situations throughout weapon system acquisition and sustainment. It also provides a baseline for performance of proactive cost-benefit analyses to address emergent DMSMS situations.

This Guidebook expounds upon some of the best practices extracted from the references, and NAVSUP N00AL's participation in the DoD and NAVSEA DMSMS Working Groups.

1.2. Scope

This Guidebook applies to all NAVSEA managed or supported systems and equipment. It is intended to be applicable to Hull, Mechanical and Electrical (HM&E), Electronic and Ordnance equipment, and therefore analysis and resolution guidelines may need to be tailored or expanded as individual DMSMS situations so dictate.

1.3. Background

DMSMS is defined as the loss or impending loss of manufacturers of items or suppliers of items or raw materials which may cause material shortages that endanger a weapon system's or equipment's development, production, or post-production support capability. DMSMS cases may occur at any phase in the acquisition cycle, from design and development through post-production, and have the potential to severely impact weapon system supportability and life cycle costs. The majority of DMSMS cases have historically been in the electronics area (primarily microcircuits); however, DMSMS problems affect all weapon systems and material categories. In addition, DMSMS problems are not always confined to piece parts. Material obsolescence situations may occur at the part, module, component, equipment, or other system indenture level.

2. DMSMS PROBLEM IDENTIFICATION

2.1. General

Initial DMSMS situations may be promulgated by a variety of sources subsequent to manufacturer discontinuance of a part or a line of products. Alerts may originate when Navy activities receive a "no bid" on parts orders for manufacturing components, or a "not available" response to a depot requisition for repair orders or the manufacturing of parts. Part manufacturers and original equipment manufacturers (OEMs) generally provide discontinuance information directly to major government and commercial customers. In addition, a variety of internal government systems have been established to distribute DMSMS alert data. It should be

recognized that since dissemination of the various alerts and control of the information contained therein are not managed by any single activity, the potential exists for inaccurate and/or duplicate data, as well as limited visibility and distribution of alert information. NAVSEA program offices and field activities should establish and maintain coordination with cognizant equipment and weapon system manufacturers, as well as appropriate government alert activities listed below, to ensure timely receipt of DMSMS information. Various subscription services, specifically dealing with electronic parts, are available for a fee. Many of the proactive obsolescence management services utilize these services as an integral part of their obsolescence management program. Each program's DMSMS Management Team (DMT) should be aware of the alert services available and coordinate the services used across the various organizations managing obsolescence for their program.

Another key tenet of the obsolescence management services is the use of vendor surveys. Conducting vendor surveys is a proactive effort to identify items that are nearing obsolescence. Identifying impending obsolescence issues provides more time for resolution consideration, thus allowing for a greater list of options for mitigating the issue and allowing more time for effective budgeting. The following is a summary of the primary DMSMS alert sources.

2.2. DMSMS Alert Sources

2.2.1. Part Manufacturers and OEMs

Discontinuance notifications are often received from part manufacturers. Manufacturers will generally notify only known customers of the part or component in question. If the government is not a direct purchaser of the material, discontinuance information must then be passed through suppliers and OEMs who are under contract to government activities. For example, alerts may be originated by OEMs when a component manufacturing contract cannot be filled because a supplier has provided them a discontinuance notice on a part needed for a contracted component. To ensure receipt of such notifications, NAVSEA program offices should insert appropriate requirements and clauses in system support and production contracts.

2.2.2. Government Procurement/Repair Activities

2.2.2.1. Defense Logistics Agency (DLA)

Internal government alerts may be generated subsequent to "no bid" or "not available" responses to equipment or part procurement/repair efforts. In these cases, a technical referral has historically been generated and forwarded on a DLA Form 339 to Naval Supply Systems Command Weapons Systems Support (NAVSUP-WSS), which may pass the information to an In-Service Engineering Activity (ISEA) for further review and analysis. Contact with NAVSUP-WSS/ISEA technical referral personnel may therefore be necessary to obtain specific alert information.

2.2.2.2. NAVSUP–WSS

DMSMS alerts may be promulgated in the course of part application reviews during NAVSUP – WSS case research. The organization will contact impacted activities with problem part numbers

and end item application data in order to identify possible resolutions. More information regarding NAVSUP – WSS DMSMS roles and responsibilities can be found in NAVSUPINST 4800.6A.

2.2.3. Government-Industry Data Exchange Program (GIDEP)

These alerts originate when GIDEP is notified by a part manufacturer or GIDEP participant that a part or production line will be discontinued. GIDEP promulgates alerts to representatives at subscriber activities in DoD, and to member organizations in private industry. GIDEP participation should be considered one of the primary alternatives for achieving alerts. These alerts should be coordinated with the alerts received from other organizations.

2.2.4. Alert Subscription Services

Numerous commercial entities monitor high-risk electronic parts/components for potential obsolescence. Subscribers to their services will receive alerts when it is confirmed that an item of interest is or soon will be obsolete.

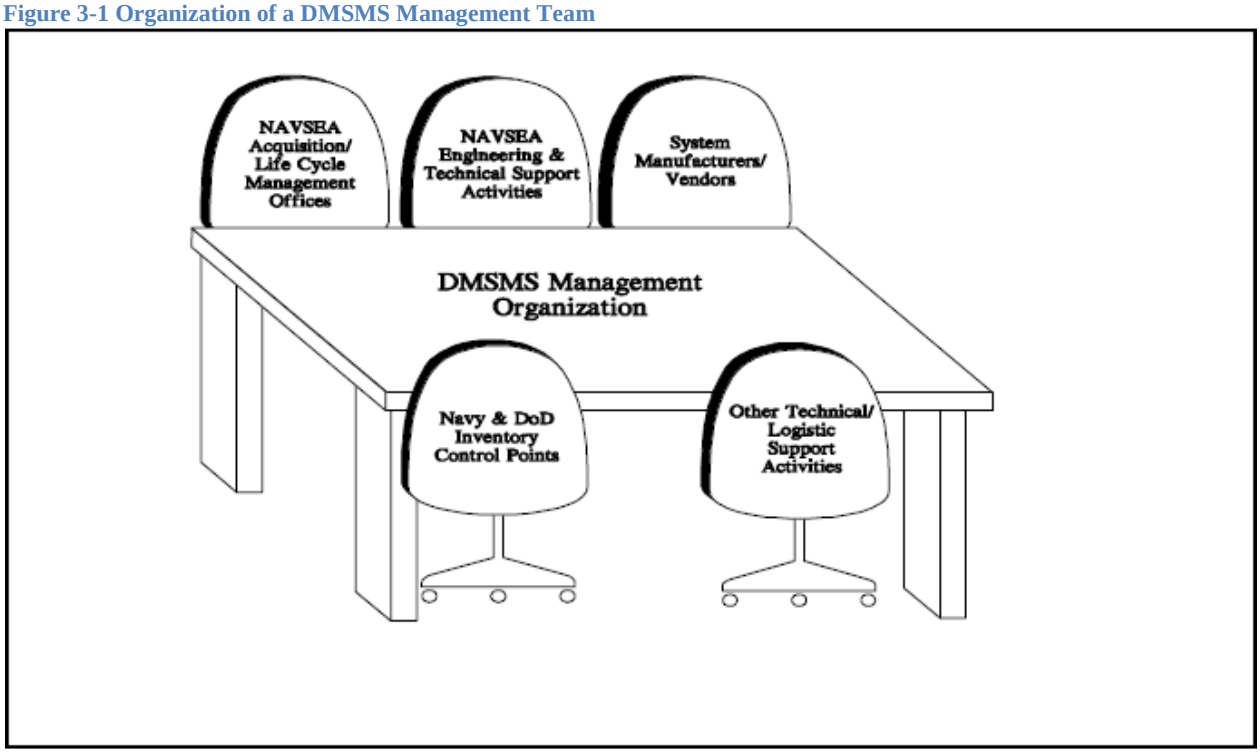
3. DMSMS ORGANIZATION DEVELOPMENT AND RESEARCH SOURCES

3.1. General

Development of an efficient DMSMS program management structure is one of the primary foundations for cost-effective case analysis. The key is to define specific roles and responsibilities for all primary program participants (both government and commercial), and establish direct lines of communication to ensure integrated approaches to DMSMS issues. The primary way to support these objectives is the establishment of a DMT within the program office. In this context, the DMT is not necessarily intended to connote a formal organization; rather, it refers to the basic point of contact (POC) network which should be established within each NAVSEA program to support life cycle DMSMS management. The DMT should include representatives, as illustrated in Figure 3-1, from:

a. NAVSEA headquarters acquisition and/or life cycle management offices
b. Cognizant NAVSEA engineering and technical support activities
c. Prime system, sub-system and end-item manufacturers and vendors
d. Appropriate Navy and DoD inventory control points (ICPs) such as NAVSUP–WSS, DLA and other system support organizations
e. Other technical and logistic support activities as appropriate, including the DMSMS management service organization that may be selected to oversee proactive DMSMS management.

Figure 3-1 Organization of a DMSMS Management Team



The DMT should serve as the central forum for investigation and resolution of DMSMS issues. NAVSEA program offices should establish program organizational structures, develop goals and objectives, identify appropriate points of contact, and assign specific responsibilities for case investigation as described in this guide. In standing-up a DMT, the NAVSEA program office must ensure particular attention is paid to engineering support requirements, since the case investigation and resolution process may require significant engineering analysis. The program office will therefore need to enlist appropriate in-house and field activity engineering expertise to ensure achievement of DMSMS program objectives. Moreover, in all cases maximum coordination should be solicited from system design and manufacturing activities throughout the case identification, investigation and resolution process. The level and extent of support which may be expected from manufacturers and engineering activities will be sensitive to funding issues and provisions of the particular contract, as well as whether the DMSMS items in question are government- or contractor-furnished equipment (GFE/CFE). Specific responsibilities in these areas should therefore be contractually addressed in new acquisitions. For in-service programs, NAVSEA activities should establish DMSMS management operations subject to their particular program constraints. The basic requirements of an effective DMSMS program are provided in the NAVSEA Requirements and Best Practices Guidebook for Diminishing Manufacturing Sources and Material Shortages (available on Navy Knowledge Online [NKO] at NAVSEA's DMSMS web portal [https://wwwa.nko.navy.mil/portal/navsea/dmsms/dmsms]). This document should be reviewed and considered by the program DMT as they establish the roles and responsibilities of the various DMSMS organizations. Specific responsibilities of the

various DMT members should be established at the discretion of the program office to support fluid DMSMS management.

3.2. DMSMS Research Aids

Upon receipt of a DMSMS notification, the program office must conduct research to verify the situation exists. This includes: Cross referencing part numbers provided to alternate part numbers and National Stock Numbers (NSNs), if possible; collecting available technical data and identifying part applications in known systems/equipment; and determining if precedent DMSMS research has been conducted by external activities. To assist in performing these functions, a number of government and industry databases and information repositories are available. A brief summary of some of the major data sources is provided in section 3.2.1. The program office should be sure to use the different sources in conjunction with one another, cross-referencing between them in order to gain a comprehensive item identification, source and application analysis.

3.2.1. Hull Mechanical and Electrical Data Research System (HEDRS)

The HEDRS, developed and maintained by the Naval Sea Logistics Center, provides substitutability, application, and re-procurement information for HM&E equipment. The database is available for government activities and their contractors. Information about HEDRS can be found on the Product Data Reporting and Evaluation Program (PDREP) website at: https://www.pdrep.csd.disa.mil/pdrep_files/retrieve_tools/hme/hme.htm.

3.2.2. Enterprise Resource Planning (ERP)

The NAVSUP–WSS supply and stock related data for Navy managed items is maintained and available through NAVSUP–WSS ERP application.

3.2.3. DLA Federal Logistics Information System Web Search (WebFLIS) and Department of Defense (DoD) Electronic Mall (EMALL)

Information pertaining to DLA managed material is obtained through WebFLIS and EMALL available through the DLA Logistics Information Services (DLIS). Additional information pertaining to the data available through this and other web-based resources is identified in the Defense Standardization Program Office SD-22 DMSMS A Guidebook of Best Practices and Tools for Implementing a Proactive DMSMS Management Program. These resources may be queried for part number cross references, current inventories, sources, applications, and usage history. Information about DLA can be found at: www.dla.mil.

3.2.4. Configuration Data Managers Database – Open Architecture (CDMD-OA)

CDMD-OA is the official repository of NAVSEA's configuration records. This source can be used to determine the extent of part usage for a particular ship or system. Information about CDMD-OA can be found at: http://www.cdmd.navy.mil/.

3.2.5. Government Industry Data Exchange Program

The GIDEP database can be searched by NSN or part number to see if there has been a DMSMS alert for an item. The program office can see previous and current actions used by other activities to resolve DMSMS situations. The GIDEP program also provides for exchange of information relative to part manufacturing, testing, operation, and characteristic data among industry and government agencies, and may also be used as a primary source of information for identifying substitute parts and redesign criteria. Access to information is available through designated GIDEP representatives at subscriber organizations, both public and private. NAVSEA program offices should ensure coordination with their GIDEP representative to support DMSMS case investigations. Information on GIDEP can be found at: http://www.gidep.org.

3.2.6. OEM Systems

The prevalence of DMSMS problems has prompted many OEMs to establish internal DMSMS programs, as well as automated weapon system configuration, case history and resolution files. Moreover, in some cases precedent work in DMSMS investigation and resolution has been performed for government agencies by OEMs or other commercial organizations. Resulting manufacturer/vendor databases are generally not available to government agencies except by special request or formal contract negotiation. However, this resource should be utilized to the extent contractual requirements and the overall level of coordination and data exchange with designated OEMs allow. Use of these systems should supplement the use of NAVSEA employed obsolescence management tool services, such as Obsolescence Management Information Service (OMIS™), Horizon Solution Suite, Supportability Management Assessment Report Tool (SMART), Future Readiness & Optimized Scheduling Tool (FROST), and Sunset Supply Base (SSB).

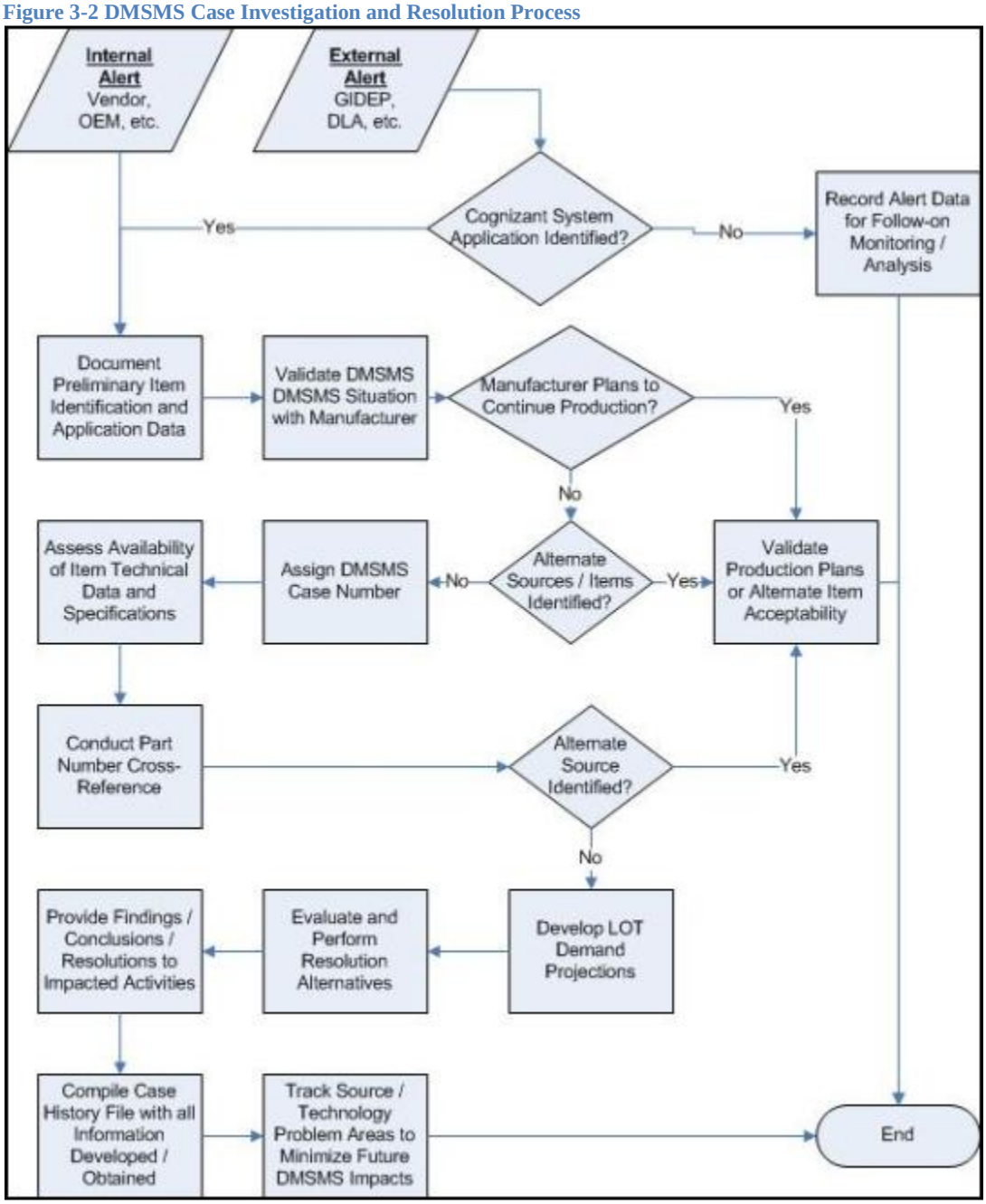
3.3. DMSMS Case Verification

3.3.1. General

Potential cases are continually identified through receipt of alerts and/or through use of one of the obsolescence management tool services. Verification should be performed as potential cases are identified. The objective of the process is to ensure reported DMSMS situations are valid and evaluate the impact on cognizant NAVSEA systems. Various types of errors may lead to invalid DMSMS situations, with one of the most common being inaccurate or incomplete part number or other item identification data. For example, government purchasing activities may obtain or generate incorrect item data during the procurement process, which may in turn lead to spurious non-availability notices. Similarly, part manufacturers may disseminate inaccurate information due to communication gaps between cognizant personnel or departments (e.g., discontinuance plans originated in product engineering may not be coordinated with sales representatives). Another contributing factor is that many alerts are published prior to completion of thorough alternate source checks. Some notices may indicate a manufacturer as the "last known source of supply," when in fact other sources exist. Therefore, the program office must

carefully validate case information prior to proceeding with full investigation efforts. An outline of the case verification, investigation and resolution process is provided in Figure 3-2.

Figure 3-2 DMSMS Case Investigation and Resolution Process



3.3.2. Initial Resolution Alternatives

During the investigation process, the program office may collect information which may support one of the following resolution options:

a. The manufacturer agrees to continue production for the expected life of system service.
b. An alternate source is located who produces the exact same part, with the same generic part number, meeting the same specifications.
c. An alternate part is identified that satisfies the form, fit and function (FFF) of the DMSMS part and meets the same specifications.

The program office should pursue these alternatives (as available) throughout the verification process, and initiate documentation changes and any other actions necessary to support case closure. Historically, the success rate for using one of these options is high. The program office should keep this in mind and potentially avoid other costly and time consuming resolution efforts. In all cases where alternate parts are considered, the program office must ensure a comprehensive form, fit and function compatibility review to validate item acceptability. It may also be necessary to perform "in system" testing to ensure the device will function in all intended applications. This effort will generally require collection of item technical data to support physical and functional specification analysis. In these cases the program office should proceed with necessary data collection steps as described in section 3.4.2.

3.3.3. DMSMS Alert Categories

There are two category type alerts available. They are internal and external. Depending on the type of alert received, the program office may need to follow slightly different procedures to verify system impacts.

3.3.3.1. Vendor, OEM or internal NAVSEA alerts

When an alert is received directly from one of these sources, cognizant system application may generally be assumed since this information is normally only provided to actual user or purchasing activities. In these cases, investigation procedures should immediately follow section 3.3.4 below.

3.3.3.2. GIDEP, DLA Land and Maritime, or other external alerts

Receipt of one of these alerts is an indication that a vendor, parts manufacturer, or OEM has identified a DMSMS situation, such as planned discontinuance of a production line or receipt of a "no bid" response for materials ordered to support a component assembly contract. These alerts generally identify established DMSMS cases within the originating activity, and may request addressees to submit life of type (LOT) part usage and demand requirements for resolution consideration. Therefore, the first issue for the program office is to determine whether reported part numbers are resident within its systems/equipment; if an impact is identified, the program office should use the provided worksheet in Appendix I. The worksheet may be helpful while

performing case verification and determining the need for case development.

> **NOTE**: It should be recognized that in some cases, providing LOT quantities to the alert originator will support procurements in anticipation of those demands. Therefore, if in the process of case investigation the program office determines that an alternate course of action is required, they may wish to coordinate with the alert originator to ensure exchange of pertinent data regarding resolution alternatives.

3.3.4. Defense Priorities and Allocations System (DPAS)

In cases where a production discontinuance has the potential to delay delivery schedules and thereby impact national security requirements, the program office should consider application of procedures under the Defense Priorities and Allocations (DPAS) system as directed by DoD 4410.1M and NAVSUPINST 4830.11. DPAS procedures authorize the President to:

a. Require acceptance of defense contracts and orders
b. Require priority performance on defense contracts and orders
c. Control scarce and critical materials essential to national defense
d. Allocate materials and resources to promote national defense
e. And direct distribution of materials essential to national defense

Not all systems/equipment are subject to DPAS guidelines. Specifically, DPAS ratings cannot be applied to items that do not directly support logistics, tactical or operational program requirements (e.g., administrative type items, liaison vehicles, personal clothing, etc.). Moreover, specific criteria must be met and documented prior to approval of a request for special priority assistance. The system is not intended to avoid established terms of sale or payment or to substitute for poor management or procurement practices. The requesting activity must demonstrate:

a. Specific need for assistance
b. Reasonable applicant effort
c. Timeliness of request to allow for solution
d. Assurance request does not seek:
    - Resolution of a technical problem
    - Price advantage
    - Unnecessary delivery improvement
    - Enforcement of unacceptable contractual terms

DPAS should not be considered as a loophole for defusing DMSMS problems. However, in cases where unreasonably short discontinuance notices are provided and national security requirements may be at stake, application of DPAS procedures may be appropriate. For more information consult the directives listed above.

3.4. DMSMS Item Analysis

3.4.1. General

Once the item is confirmed as a DMSMS candidate and a case assigned, the program office should develop detailed item characteristic, cross-reference, and application data, along with estimated LOT requirement projections. The goal is to conduct a comprehensive screening for alternate parts or sources, and acquire technical and logistics information necessary to allow a thorough evaluation of case resolution alternatives. The program office should coordinate with POCs within the DMSMS management structure to ensure a comprehensive analysis.

3.4.2. Steps for DMSMS Item Analysis

STEP 1 – Expand DMSMS item technical data previously collected. In order to proceed with case investigation, complete part specifications and other technical data (for both the DMSMS item and the Next Higher Assembly) must be obtained. Such data will generally include drawings (Level 3 production drawings when available) and any special part testing requirements or programs, as well as source or procurement information such as Contractor Technical Information Coding (CTIC) or other item breakout data. Only when detailed part characteristics are obtained can alternate item/source analysis and other resolution actions as discussed below be conducted.

The data collection process may require close coordination with prime system manufacturers/vendors to validate availability, accuracy and adequacy of the data and drawing package. In some cases, drawings originally delivered may prove incomplete or insufficient for DMSMS analysis, and may require enhancement by appropriate manufacturing/engineering activities. If the data package and Level 3 drawings were not originally purchased by the government, the program office should determine the cost to procure information sufficient for item re-procurement. If part documentation is proprietary or otherwise unavailable, NAVSUP/DLA should be consulted regarding possible options of acquiring the items prior to expenditures for characterization testing or reverse engineering to develop a suitable technical data package assessment. Data availability and cost information may directly impact selection of DMSMS case resolution alternatives, and this information should therefore be integrated within the analyses of resolution alternatives described in section 4.2.

STEP 2 – Conduct part number cross reference. The purpose of this step is to query available databases to identify alternate government or commercial reference numbers which the DMSMS part may be listed under, and determine any previously unknown system applications. If alternate part numbers and/or procurement sources are identified, the program office should conduct research to validate availability and acceptability of the potential replacement items. Specifically, alternate suppliers should be contacted and asked the information in paragraph 3.3.4 as appropriate. For any potential alternate part,

engineering and specification reviews should be conducted to ensure the part satisfies the exact FFF requirements of the DMSMS item and meets the same specifications. Those parts which do not meet exact FFF requirements, but have minor degrees of non-conformance, should be highlighted for further review as potential substitutes during the analysis in section 4.

NOTE: Evaluation of alternate items/sources may need to be approached differently for HM&E versus electronics items, due to the greater degree of interchangeability and substitutability at both the part and equipment level among HM&E material. DMSMS problems for certain HM&E items (e.g., pumps or valves) may well be resolvable via FFF change outs at the equipment level, an action that would rarely (if ever) be feasible in the electronics arena. The HM&E Equipment Data Research System (HEDRS) provides a vehicle to allow cross reference analyses for HM&E equipment. The program office should utilize this system to the maximum extent when researching alternate sources and items for HM&E DMSMS cases.

STEP 3 – Analyze LOT application requirements. Selection of a viable DMSMS resolution alternative requires development of the projected lifetime demand for the item in question. This can be a fairly complex analysis, as it may include demands for current and planned production quantities, Installation and Checkout (INCO) spares and Maintenance Assistance Modules (MAMs), and all in-service system repair and life cycle support needs. The best way to avoid miscalculation is to coordinate with all impacted activities at the start of the process, and then tailor the analysis as individual case situations so dictate. Appendix II is a useful tool to calculate LOT requirements.

NOTE: The phrases Life of Type (LOT) and Life of Service (LOS) as used herein have two distinct connotations. LOT is used in reference to all DMSMS item applications, while LOS pertains to a single application.

4. DMSMS PROBLEM RESOLUTION

4.1. General

The following procedures are intended to support comprehensive technical and cost analyses for each DMSMS case resolution alternative. The alternatives listed are not necessarily mutually exclusive; the potential may exist to combine resolution options to achieve cost, technical or schedule benefits. For example, modified LOT buys may be executed to provide sufficient stopgap material while longer term design-related alternatives are pursued. Therefore, throughout the case investigation process, the program office should be sure to consider the potential for integrating elements of different methodologies to support cost-effective resolutions. In performing the following analyses, the program office should continue to work closely with manufacturers and other DMSMS POCs to ensure availability of comprehensive case data. Coordination should also continue to be maintained with other impacted Navy activities to

maximize the exchange of pertinent information, and provide technical and economic leverage associated with combined resolution efforts (as appropriate).

During conduct of the following analyses, the program office should consider repeated attempts to coordinate with the DMSMS item manufacturer to support interim or long term production needs. The potential may exist for manufacturer plans or decision factors to have changed; alternately, the NAVSEA program office may have obtained new information which may persuade the manufacturer to renegotiate final production dates. Continued attempts at alternate part or supplier identification should also be pursued. Even at this stage in the case investigation, the program office should remain cognizant of resolution options which may avoid the extensive time and resource impacts associated with the alternatives discussed below.

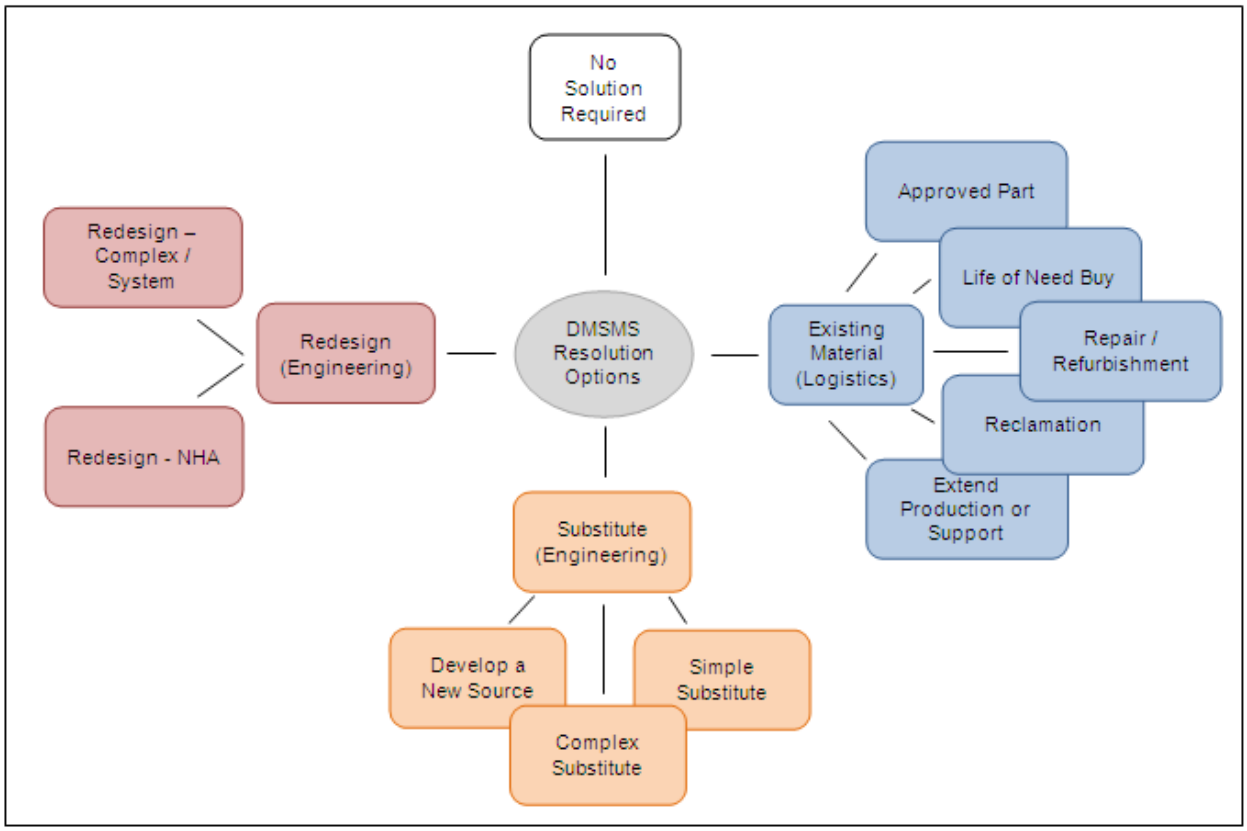
4.2. Resolution Options

The following section describes the primary DMSMS case resolution options. Depending on the situation, some options may be deemed inherently more feasible or appropriate by the program office, and this determination may have the potential to affect the degree to which each alternative is investigated. Nonetheless, in each case the program office should ensure a baseline evaluation (a business case analysis) of all available options is performed in order to facilitate comprehensive resolution analyses.

In evaluating the following alternatives, the program office should keep in mind the distinction between "design" versus "logistics" options -- that is, those actions which result in major system engineering changes and those which entail continued use of the DMSMS item (or an approved replacement). Both approaches have distinct advantages and disadvantages. When considering design solutions, the program office should recognize that although some may provide performance enhancements which will upgrade system capabilities, the new configuration items will also have the potential to become DMSMS problems at some point. Conversely, logistics options will theoretically provide life cycle DMSMS solutions; however, depending on the system/equipment in question, the potential may exist for continued DMSMS impacts as the system ages (the Domino Effect). This comparison may be directly applied to the cost analysis as well. Specifically, design options, although traditionally more expensive, may be justified in part by projected performance enhancements. On the other hand, while logistics options may initially be less expensive, potential out year DMSMS impacts (as discussed above) may create substantial long term costs. There is no precise method for quantifying all of the potential costs/benefits of the resolution "categories"; however, the program office should ensure consideration of these issues when developing technical and cost analyses in support of the following procedures.

Figure 4-1 identifies the various solution types that will be discussed and illustrates how they fit into an “engineering” or “logistics” type solution.

Figure 4-1 DMSMS Resolution Options



4.2.1. No Solution required

No solution required because existing stock will satisfy future demands for the product. This is often the result of planned tech refresh, redesign, or system retirement.

4.2.2 Existing Material (Logistics)

Identifying existing material for an item often presents the most effective approach to resolve obsolescence issues. Several resolution types fall into this category. A description of these resolutions follows.

4.2.2.1 Approved Part

The obsolescence issue is resolved by the use of items already approved on the drawing and which are still in production.

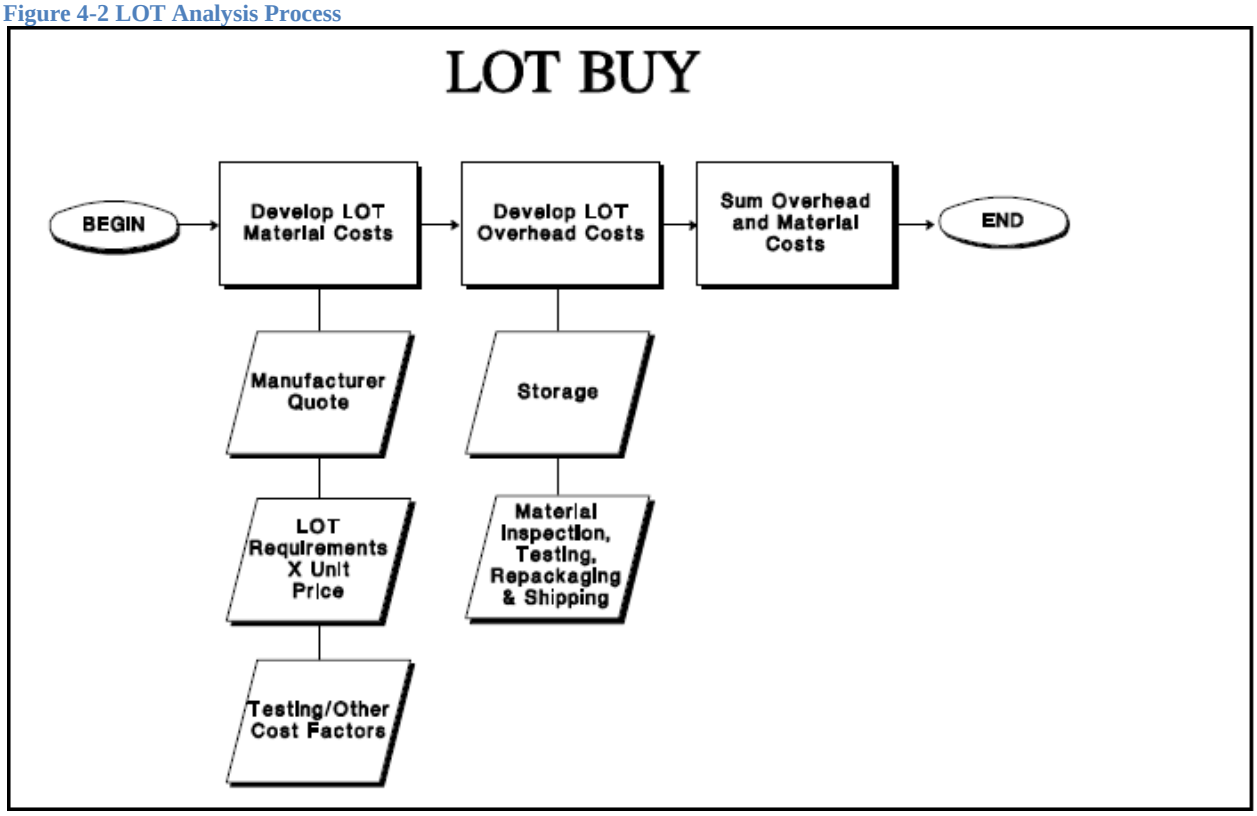
4.2.2.2 Life of Type (LOT) Buy (may also be referred to as Life of Need Buy)

A sufficient quantity of the item is purchased to sustain the product until its next technology refresh or the discontinuance of the host assembly. Since this solution uses an approved item, no testing or drawing changes are required. The source of supply can be residual stock from the original manufacturer, shelf stock from distributers, sponsor owned material, etc. Costs for packaging, storage, and transportation should be considered in the business case analysis for selecting solutions. LOT buy calculations should be continued on the LOT Requirements

Analysis Worksheet, Appendix II. An analysis of each resolution alternative should be accomplished to determine which approach is most cost effective. A summary of the LOT buy process is provided below.

NOTE: The program office should always attempt to coordinate requirements with other impacted activities when executing a LOT buy. Although this may require additional effort in compiling funding inputs and establishing material delivery and related logistics requirements, the potential unit price break based on higher volume procurements may easily offset any administrative costs.

Figure 4-2 LOT Analysis Process



4.2.2.3 Repair / Refurbishment

The obsolescence issue is resolved by instituting a repair/refurbishment program for the existing item or assembly. Whether it be by depot repair, a repair contract with the original manufacturer, or support from a third party.

4.2.2.4 Reclamation

This alternative should be considered primarily to resolve crisis DMSMS situations, as a short term resolution alternative, or in cases where remaining LOT demand is minimal. It will be most effective when a supply of end items has been identified and resources are available for recovery, testing, repackaging and storage. Potential sources for this alternative include beyond economical repair (BER) equipments at depot repair facilities; surplus and stored material removed due to modernization programs; or items resident within deactivated or

decommissioned units. The steps described below provide an overview of the reclamation process.

STEP 1 – Assess availability of DMSMS items in surplus, obsolete and out-of-service systems. If the program office does not have preliminary knowledge of a potential reclamation source, this information may be evaluated via:

a. Coordination with depot repair and storage facilities known to be repositories of BER or surplus material.

b. Coordination with the ICP, the Navy Maintenance Support Office, DLA activities or other DoD supply and logistics organizations.

c. Analysis of Navy residual assets, including review of the Real-time Reutilization Asset Management (RRAM) program.

d. Once candidate systems or end-items are identified, the program office should also establish coordination with cognizant system sponsors as necessary to initiate the reclamation approval process.

STEP 2 – Calculate the usable population of DMSMS parts within out-of-service systems. This number should then be adjusted to reflect the percentage of reclaimed parts which can be expected to fail acceptance testing due to damaged sustained during removal, shipping, de-packaging, testing, repackaging and storage (the program office may coordinate with reclamation and engineering activities to determine the appropriate level of this adjustment). Compare usable population projections with the final DMSMS item LOT requirements. If the reclamation option will satisfy LOT projections, or is required to resolve a crisis situation or serve as an interim resolution measure, proceed to Step 3.

STEP 3 – Develop LOT cost projections for the reclamation alternative. This may involve requesting a letter of interest from OEMs or cognizant depot activities to determine costs for:

a. Transportation of end items to a designated facility for performance of reclamation and testing

b. The physical reclamation process, where cannibalization or end-item disassembly is required

c. De-packaging, testing and repackaging of DMSMS items

d. Storage, handling and shipping of DMSMS material for the LOT

STEP 4 – Document total costs and develop a timeframe for completion of the reclamation process, including times for support and industrial activities performing the reclamation

work. The program office should also maintain coordination with system sponsors as necessary to expedite final approval of the reclamation process.

4.2.2.5 Extend Production or Support

Incentivize the supplier to continue providing the obsolete items. This may involve long term agreements to procure specific quantities of parts. There may be one-time costs associated with setting up this solution which should be included in any cost and cost avoidance calculations. One variation of this solution involves working with the manufacturer to resolve any obsolescence problems they may encounter with a Commercial off the Shelf (COTS) assembly's piece-part(s) or raw materials, so they are able to continue to manufacture the original COTS part. The Government obtains the COTS Assembly Bill of Materials (BOM) from the OEM, resolves piece-part obsolescence, and then provides the needed parts to the OEM as Government Furnished Material to facilitate continued manufacture and repair.

4.2.3 Substitute (Engineering)

These alternatives involve analyzing DMSMS item characteristics and attempting to locate a similar part with an acceptable degree of non-conformance. A detailed cross reference and comparison of original versus substitute part characteristics must be conducted, and an engineering deviation or waiver is generally required to support the change since it may require relaxing part specifications or performance parameters. It should be noted that cross reference methodologies may differ for HM&E versus electronic items, in part due to the degree of military specifications (MILSPECs) or military standards (MILSTDs) which are available for reference.

4.2.3.1 Simple Substitute

Replacing an item with an existing item that meets all requirements without modification to either the item or its Next Higher Assembly and requires only minimal qualification. Associated costs are largely administrative.

4.2.3.2 Complex Substitute

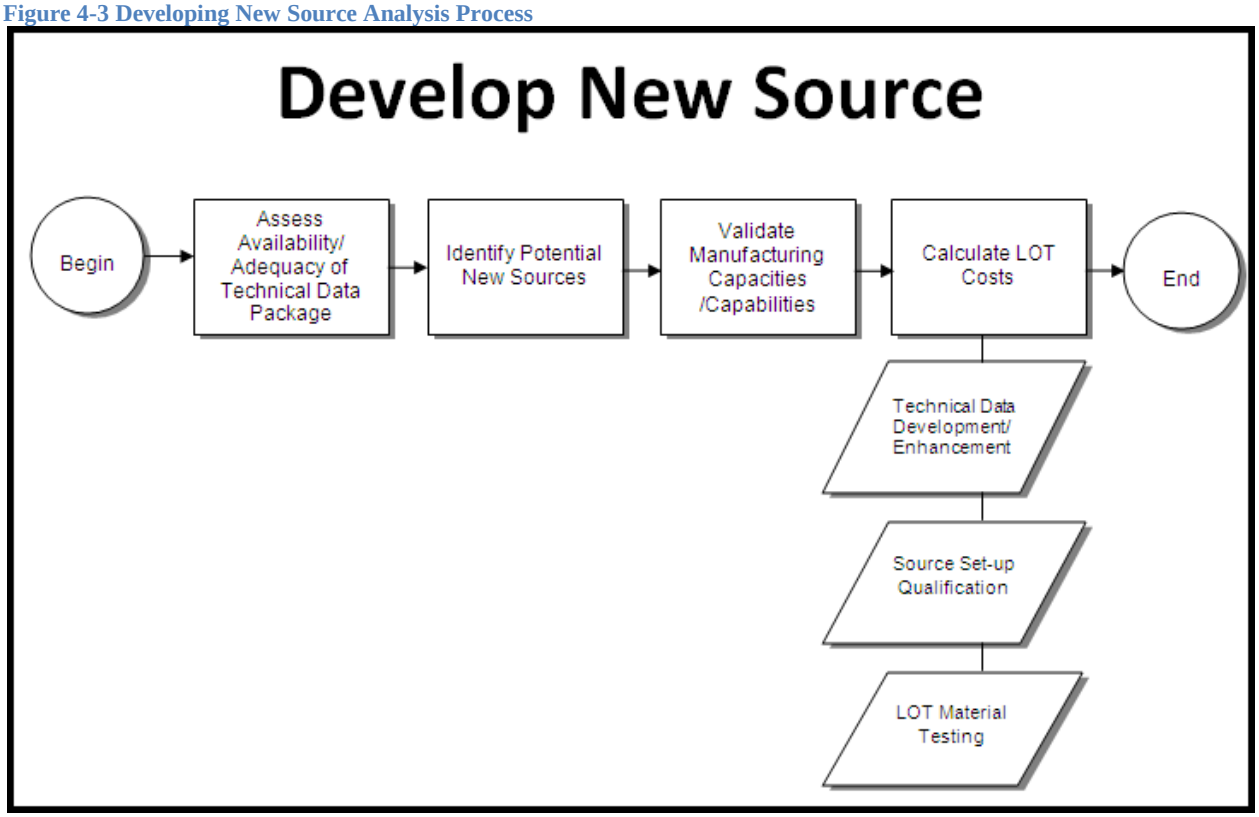
Research and validate a replacement item with different specifications but which requires no modification of the source product or the NHA.

4.2.3.3 Develop a New Source

Develop a replacement product which meets the requirements of the original product without impacting the NHA. Non-Recurring Engineering or other development related activities will likely be required. The new product may be an emulation, reverse engineered products, or a product developed as a replacement using a different manufacturer based off the original manufacturing designs and processes. These alternatives may be most appropriate when the DMSMS problem occurs at either the equipment or component level, and the LOT demand is projected to be high. New sources as discussed herein may include both government and

commercial organizations. For example, in-house Navy manufacturing capabilities, such as the Rapid Acquisition of Manufactured Parts (RAMP) effort, may be considered. The flowchart in Figure 4-3 depicts the new source development process.

Figure 4-3 Developing New Source Analysis Process



STEP 1 – Validate the availability and adequacy of DMSMS item technical data package to support source set-up and manufacturing/testing requirements. If the data is not currently owned by the government, the program office will need to determine costs and schedules for data acquisition (See section 3.4.2).

STEP 2 – Identify alternate manufacturing sources. In pursuing this step, the program office may find it useful to revisit contacts established during the preliminary manufacturer query; alternately, requesting a letter of interest from leading manufacturers may also assist in identifying candidates. The program office should also coordinate with representatives from government manufacturing programs to assess in-house capabilities.

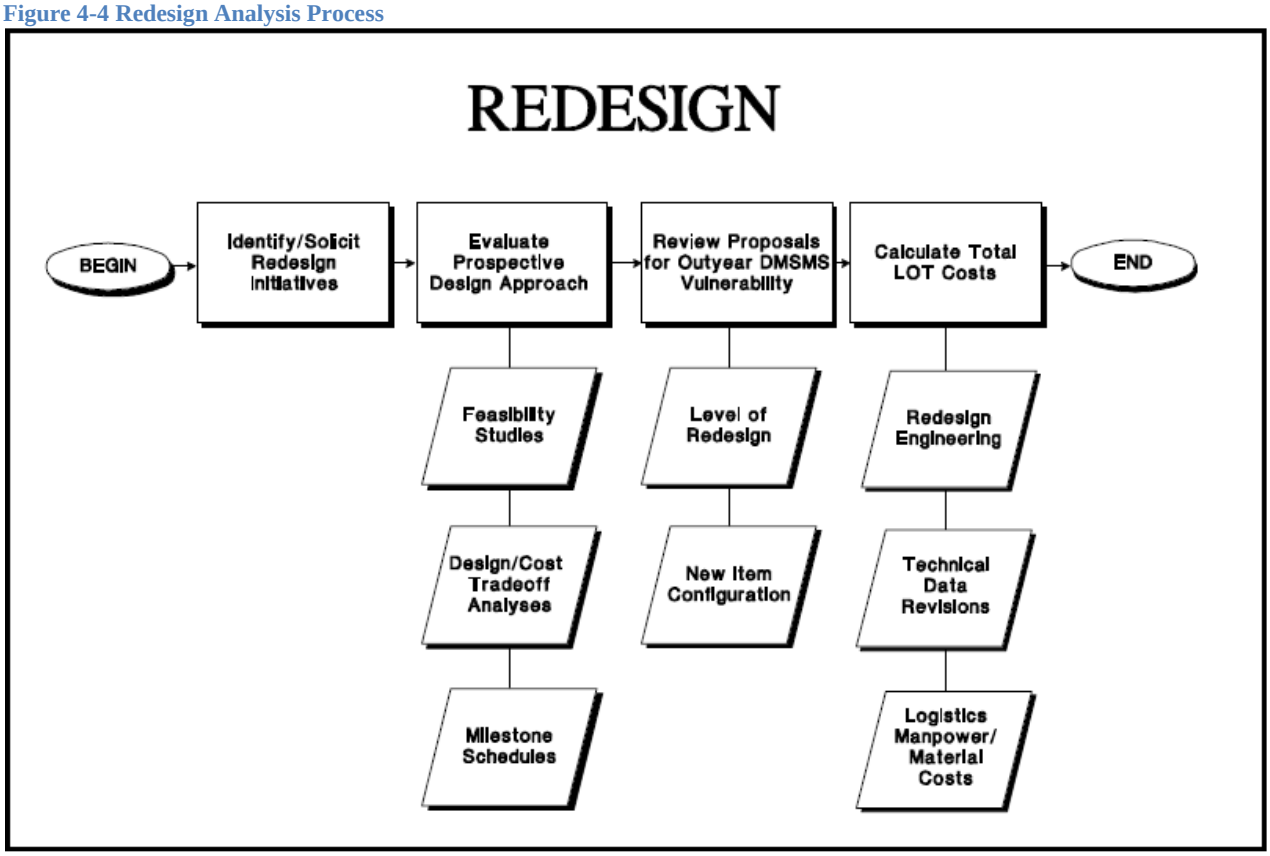
STEP 3 – Provide technical data, drawings and any other information necessary to allow manufacturer feasibility, production and cost analyses. Request technical/cost proposals and production and delivery schedules for manufactured items.

STEP 4 – Develop LOT costs for this alternative, including technical data acquisition/enhancement, source set-up and qualification and LOT material requirements.

4.2.4 Redesign (Engineering)

These alternatives involve designing-out DMSMS items via engineering changes at various system indenture levels, with the goals of enhancing system performance and improving reliability and maintainability. An increasingly common type of redesign, known as technology insertion, entails development of fit-transparent replacements for aging electronics technologies primarily at the component and board level. As in previous alternatives, redesigns at the component or lowest replaceable unit (LRU) level may involve significant risk if the item in question has multiple different applications, and extensive system integration testing may be required. Moreover, depending on the scope and level of the redesign effort, substantial non-recurring engineering and life cycle logistics costs may accrue. Given the relative magnitude of engineering and logistics cost factors, redesigns may be most appropriate when a fairly large percentage of current or potential DMSMS parts are resident within a particular component, equipment or end-item. The flowchart in Figure 4-4 provides an overview of the redesign process.

Figure 4-4 Redesign Analysis Process



STEP 1 – Assess status of current and planned redesign initiatives for cognizant systems/ equipment, and request associated technical and cost proposals. OEMs and part manufacturers may have programmed redesign efforts into ongoing support contracts, or conducted precedent research supporting DMSMS problem prevention or other design

objectives. If no redesign activities are ongoing, the program office should solicit proposals from the OEM.

STEP 2 – Review and approve redesign engineering and cost proposals, and ensure development of feasibility studies, design and cost tradeoff analyses, milestone charts, and any other information necessary to validate schedule, technical and financial aspects of the redesign approach.

STEP 3 – Evaluate proposed redesign indenture level and out year DMSMS vulnerability. With regard to the first objective, analysis of both existing and potential DMSMS problems on a total system, equipment or end-item basis may be necessary to determine the most efficient indenture level for redesign efforts. The program office should strive to incorporate design changes on a sufficiently broad scale to minimize continued piece part DMSMS impacts. At the same time, parts and materials used in the final engineering change package should also be screened to determine out year DMSMS risk.

NOTE: DMSMS screening may be performed using a variety of methods; however, the key is to minimize use of classic DMSMS risk categories (e.g., foreign/sole source, hybrid, unique or older technology items), and maximize standard, multi-source, commercially available parts. Detailed systems and algorithms to support more complex risk analysis have also been developed, and are available through various sources as discussed in Section 3.2.

STEP 4 – Develop LOT cost projections for this alternative, which include up-front system engineering, testing, procurement and installation. Technical data development/modification and additional life cycle logistics support costs (both manpower and material) associated with the redesigned item should also be captured. A number of logistics cost estimating models, which provide life cycle cost factors for equipment engineering changes and alterations, are available to assist in this analysis. The cost-estimating group supporting the program office should have a model tailored to the program.

4.2.4.1 Redesign – Next Higher Assembly (NHA)

This solution requires that the affected items' NHA be modified. Only the NHA is affected and the new design will not affect anything at a higher level in the system.

4.2.4.2 Redesign – Complex / System Replacement

A major assembly redesign affects assemblies beyond the obsolete items' NHA and may require that higher-level assemblies, software, and interfaces are changed.

4.3. DMSMS Resolution Alternative Selection

Once engineering and cost impacts of potential case resolution options are identified, the program office must determine the most cost-effective approach (or blend of approaches) to resolve the particular DMSMS situation. If a component or equipment configuration is already

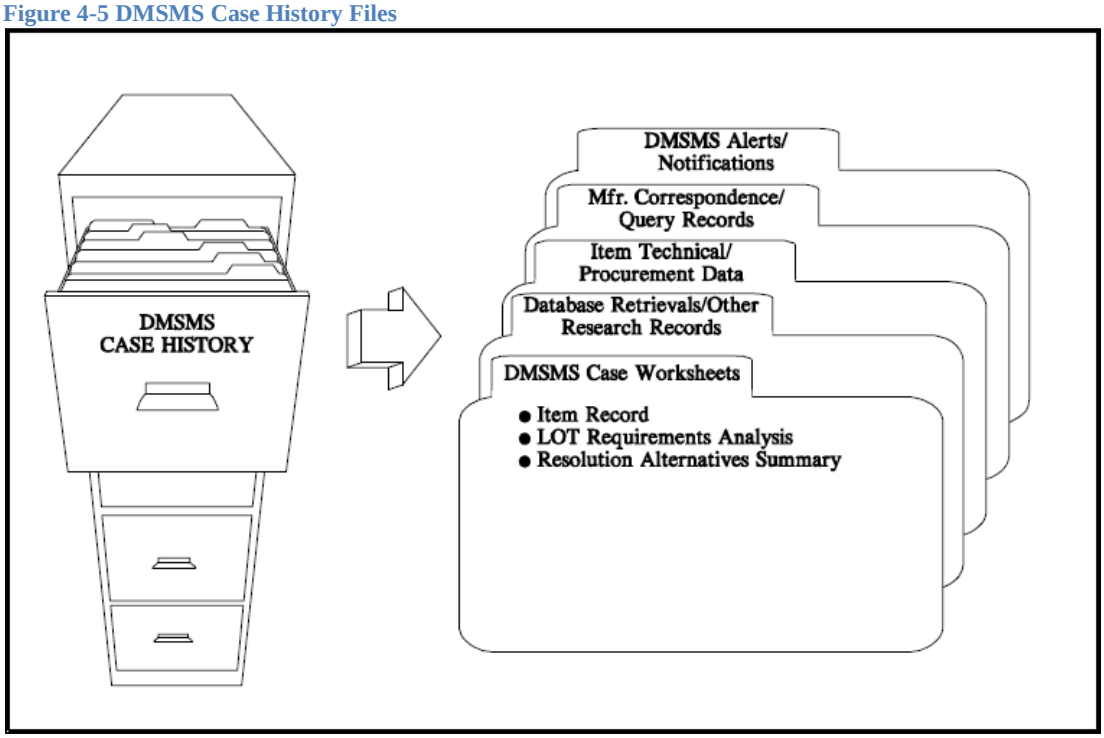
skewed towards obsolescence, DMSMS problems are likely to continue to multiply. As such, any resolutions implemented at the piece part level should be carefully weighed against component or equipment level initiatives such as redesign, which may eliminate multiple current and potential DMSMS problems. Therefore, if both design and logistics options are available, the program office may wish to assess the component/equipment DMSMS profile prior to finalizing a resolution approach. The program office should also recognize that other information derived in the course of case investigation may affect the selection of resolution options.

4.4. DMSMS Data Management/Monitoring

4.4.1. DMSMS Case History File

The program office should establish DMSMS history files containing all data collected or developed during the case resolution process. The files should be maintained to support follow-on analyses and to assist other Navy and government activities in conducting related DMSMS investigation efforts. As a corollary action, the program office should establish procedures for tracking prospective source, technology or other DMSMS risk areas identified during case investigations. For example, conversations with manufacturers may indicate emergent DMSMS problems or broader supplier financial or technical circumstances which may affect continued production operations. Alternately, a prevalence of DMSMS cases involving similar part types or technologies may suggest general obsolescence trends. The program office should record and monitor any such source/technology trends in support of life cycle DMSMS management efforts. Figure 4-5 illustrated the type of data that should be collected and retained during the case research, verification and resolution process.

Figure 4-5 DMSMS Case History Files



4.4.2. Life Cycle DMSMS Management

The foundation for effective life cycle obsolescence management resides in careful integration of DMSMS program elements with system/equipment configuration control activities. As suggested in section 3.2, maintenance of accurate configuration data to the piece part level is essential in allowing DMSMS impact assessments and associated resolution analyses. At the same time, this information will also support visibility of potential out-year DMSMS problem areas and provide the basis for proactive resolution efforts. Accordingly, an effective life cycle DMSMS management program will involve components from each of the following areas:

a. **Configuration item identification/analysis**. Development and maintenance of current configuration item listings to the piece part level are essential to effective DMSMS program management. Moreover, as system parts lists are defined, line items should be subject to periodic technology/risk screening to identify existing and potential out-year DMSMS problems.
b. **Parts list review/prioritization**. Once general DMSMS risk factors have been assigned to system parts lists, a prioritized set of targets for both reactive and proactive DMSMS analyses may be developed. All current and near-term problems should be slated for immediate investigation, with remaining line items categorized by projected out-year availability. The program office may wish to further refine rankings to reflect general engineering judgment, specific item/source risk elements as identified during case analysis, or individual item characteristics deemed appropriate (e.g., criticality, number of applications, demand volume).
c. **Periodic market assessment**. Although DMSMS screening has the potential to assist in statistical problem prediction, the accuracy of such forecasting for individual line items cannot be guaranteed. As discussed above, direct manufacturer coordination is often the only way to precisely evaluate DMSMS vulnerability for specific items. The program office should therefore establish a program of periodic contact with selected item manufacturers and other industrial organizations and government agencies in order to maximize early identification of DMSMS issues.

Once life cycle DMSMS management procedures are established, the program office will be able to conduct proactive analyses on projected out-year DMSMS candidates. Such analyses may be useful in minimizing crisis DMSMS situations and associated readiness and cost impacts. These procedures will also allow the program office to keep a running profile of system/equipment DMSMS vulnerability, which can be helpful in maintaining a total "system" perspective during individual item resolution considerations. With a life cycle DMSMS management program in place, the program office will support cost-effective identification and resolution of DMSMS problems before they become crisis situations, impacting weapon system supportability and readiness.

ACRONYMS

Acronym	Definition
ARF	Application Replacement Factor
BER	Beyond Economical Repair
BRF	Best Replacement Factor
BOM	Bill of Materials
CAGE	Commercial & Governmental Entity
CDMD-OA	Configuration Data Managers Database – Open Architecture
CFE	Contractor Furnished Equipment
COTS	Commercial off the Shelf
CTIC	Contractor Technical Information Coding
DLA	Defense Logistics Agency
DLIS	DLA Information Services
DMP	DMSMS Management Plan
DMSMS	Diminishing Manufacturing Sources & Material Shortages
DMT	DMSMS Management Team
DoD	Department of Defense
DPAS	Defense Priorities and Allocations System
DTL	Diode Transistor Logic
ECP	Engineering Change Proposal
EMALL	Electronic MALL
ERP	Enterprise Resource Planning
FFF	Form, Fit, Function
FROST	Future Readiness & Optimized Scheduling Tool
GFE	Government Furnished Equipment
GIDEP	Government-Industry Data Exchange Program
HEDRS	HM&E Data Research System
HM&E	Hull, Mechanical & Electrical
IC	Integrated Circuit
ICP	Inventory Control Point
INCO	Installation and Checkout
ISEA	In-Service Engineering Activity

Acronym	Definition
LOS	Life of Service
LOT	Life of Type
LRU	Lowest Replaceable Unit
MACHALT	Machinery Alteration
MAM	Maintenance Assistance Module
MILSPEC	Military Specification
MILSTD	Military Standard
NAVICP	Naval Inventory Control Point
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
NAVSUP - WSS	NAVSUP Weapon System Support
NHA	Next Higher Assembly
NKO	Navy Knowledge Online
NLN	Navy Logistics Network
NMOS	N-Type Metal Oxide Silicone
NOR	Notice of Revision
NSN	National Stock Number
OEM	Original Equipment Manufacturer
OMIS™	Obsolescence Management Information Service ™
ORDALT	Ordnance Alteration
PDREP	Product Data Reporting and Evaluation Program
PEO	Program Executive Offices
P/N	Part Number
PMOS	P-Type Metal Oxide Silicone
POC	Point of Contact
RAMP	Rapid Acquisition of Manufactured Parts
RE	Reverse Engineering
RRAM	Real-time Reutilization Asset Management
RTL	Resistor Transistor Logic
SHIPALT	Ship Alteration
SMART	Supportability Management Assessment Report Tool

Acronym	Definition
SMD	Standard Military Drawing
SPAWAR	Space and Naval Warfare Systems Command
SSB	Sunset Supply Base
TRF	Technical Replacement Factor
WebFLIS	Federal Logistics Information System Web Search
WSF	Weapon Systems File

Appendix I – Sample DMSMS Case Resolution Worksheet

DMSMS CASE WORKSHEET	ALERT SOURCE
	CASE NUMBER
1. PART IDENTIFICATION DATA	DMSMS ANALYST/PHONE

MANUFACTURER NAME, CAGE, ADDRESS, TELEPHONE AND POINT OF CONTACT			
MANUFACTURER P/N	NAVY PART / DRAWING NO.	GENERIC P/N	NATIONAL STOCK NUMBER
MILITARY P/N	STANDARD MILITARY DRAWING	NEXT HIGHER ASSEMBLY	

2. APPLICATION DATA*

APPLICATION	QUANITY PER APPLICATION	NUMBER OF APPLICATIONS	TOTAL QUANTITY

* Ensure consideration of additions/deletions due to ECPS, NORs, MACHALTs, ORDALTs & SHIPALTs, as well as INCO/MAM requirements.

3. MANUFACTURER QUERY

IS THE PART CURRENTLY PRODUCED?	IS THE PART MANUFACTURED UNDER OTHER P/N?
HOW LONG DOES THE MANUFACTURER PLAN TO PRODUCE THE PART?	DO ANY OTHER MANUFACTURER MAKE THE SAME PART? WHO?
DOES THE COMPANY SELL THE PARTS TO OTHER MANUFACTURER? WHO?	WAS/WILL THE PRODUCTION LINE/INVENTORIES BE SOLD?
IS A REPLACEMENT OR NEW TECHNOLOGY PART AVAILABLE? P/N?	WHAT IS THE LATEST DELIVERY DATE?
WHAT IS THE MINIMUM ORDER QUANTITY OR VALUE?	WHAT IS THE LATEST DELIVERY DATE?

UNDER WHAT CIRCUMSTANCES WILL THE COMPANY CONTINUE TO MANUFACTURE THE PART?
HOW LONG WILL THE COMPANY PROVIDE REPAIR SERVICES FOR THE ITEM?

4. ALTERNATE PART DATA

ALTERNATE P/N	MANUFACTURER (NAME, ADDRESS, PHONE, POC)

5. DMSMS DETERMINATION

☐ **PART DMSMS STATUS CONFIRMED. ASSIGN CASE NUMBER.**	☐ **PART IS NOT DMSMS. AVAILABILITY INFORMATION PROVIDED BELOW.**

6. NOTES

NOTE: The information identified in Appendix I is provided as sample information that might be helpful in case verification efforts. The program office should identify and document all information necessary to perform a comprehensive analysis for each DMSMS case. As such, this data should be compiled for each alert item. The data should be made available in a manner that can be readily shared across the program and potentially with other programs. Move this note to just after step 1 and keep in this section.

STEP 1 – Validate the part warrants attention.

Obtain Part Identification Data (as available) from the alert or alert originator.

STEP 2 – Validate that the alert is valid by checking with the manufacturer.

Identify part usage in all cognizant system applications, including in-service, in-production, and planned production systems, as well as any known Engineering Change Proposals (ECPs), Notices of Revision (NORs), Ordnance Alterations (ORDALTs), Machinery Alterations (MACHALTs), and Ship Alterations (SHIPALTs). This may

require review of system top-down breakdowns and other technical data, as well as coordination with OEMs and other system design/manufacturing activities to identify ongoing or planned redesign initiatives. Identify application name, DMSMS item quantity, number of applications, and total quantity of DMSMS parts for each application. Ensure the DMSMS quantity per application is adjusted to reflect additions or deletions based on engineering changes or alterations. The program office should regularly update application data such as that identified in the worksheet above in order to maintain a comprehensive DMSMS impact assessment.

STEP 3 – Contact the appropriate authority to verify part DMSMS status, and update the manufacturer information maintained in DMSMS records as appropriate

The program office should identify themselves fully by name, organization and specific purpose of call, and request the information listed below. Moreover, the program office should coordinate with the appropriate authority and try to enlist the manufacturers' cooperation in either continuing production for a period of time or helping to identify alternate sources for the item in question. To ensure validity, the program office may also wish to request that the manufacturer contact provide a letter confirming/denying the DMSMS situation.

For initial DMSMS alerts, the importance of direct dialogue with the item manufacturer should not be underestimated. In some cases prime contractors may not make much of an attempt to confirm or negotiate DMSMS situations reported by vendors, because a redesign may present a more profitable option. Therefore, contact with original item manufacturers should be viewed as essential for minimizing time and resource impacts of DMSMS situations. Moreover, the program office should not restrict manufacturer contacts to those identified in the initial alert. All potential sources identified during the case investigation process should be contacted to determine the information detailed in the following steps. For external alerts (e.g., GIDEP) it may generally be assumed that the manufacturer contact has already been initiated, and the program office may determine that further contact is not required. Similarly, if the program office knows another DoD activity has already initiated case investigation, he/she may wish to coordinate with them first to assess the extent of available information. The following can be used as a guide when conducting a manufacturer query:

a. Does the company still manufacture the part? Is the part manufactured under another part number? (If NO, skip to c.)
b. Does the company plan to continue manufacturing the part? (If YES, document length of availability on the case worksheet and skip to Step 5. If NO, skip to c.)
c. Should the company indicate that production has ceased or will cease, request the following information:

1. Do any other companies make the same part? (If YES, also see Step 4.)
2. Does the company sell the part to any other manufacturers of military systems? (If YES, the analyst may wish to request POCs at other manufacturers to assist in attempting to locate an alternate source of supply.)
3. Does the company intend to sell the production line or existing inventories? (If YES, also see Step 4.)
4. Is a replacement or new technology part being developed to supersede the DMSMS item? (If YES, request the manufacturer to perform/provide a substitution analysis, or obtain baseline part data and perform an in-house evaluation of FFF interchangeability with the DMSMS candidate.)
5. What is the last date for order processing, what is the minimum order amount, value or quantity, and what is the latest delivery date?
6. Under what circumstances would the company continue to manufacture the part?
7. How long after production cessation does the company plan to provide repair services for the item? (This will apply only in those cases where the item is an equipment/component versus piece part).

NOTE: At this point the program office should also consider contacting POCs at other Navy activities to determine whether precedent case research has already been conducted. In the past, lack of communication regarding DMSMS issues has contributed to inefficient case analyses and resolutions. Therefore, the program office should attempt to identify historical or ongoing investigations which may assist in resolving the issue at hand, and coordinate case analyses (where feasible) to generate technical/cost benefits and minimize duplication of effort.

STEP 4 – Should the company indicate there is another manufacturer of the item or another manufacturer is buying the product line, request company name, POC, and phone number. Establish contact with the company and request appropriate information in Step 3.

STEP 5 – Should preliminary analysis indicate that the item is still available, inform the alert originating activity and other concerned organizations and provide any schedule, minimum order quantity and related requisition/purchase data (Also document this information in section 5 of the Case Worksheet). If reported item availability timeframes are relatively short or uncertain, the program office may still face a near term DMSMS problem. In these cases, the program office may wish to proceed with resolution alternatives development as described below in order to facilitate a rapid, efficient and cost-effective solution should a DMSMS situation emerge.

STEP 6 – Confirm item as DMSMS candidate. When item non-availability is confirmed, a case should be initiated and documented for tracking according to the DMT procedures.

Appendix II – Sample LOT Requirements Analysis Worksheet

LOT REQUIREMENTS ANALYSIS							Date: DMSMS ANALYST/PHONE: CASE NO.:			
MANUFACTURER:		P/N:			DRAWING NO.:		NSN:			
		1	2	3	4	5	6	7	8	TOTAL
1	APPLICATION									
2	QUANTITY/ APPLICATION*									
3	NUMBERS OF APPLICATIONS									
4	TOTAL POPULATION									
5	Application Replacement Factor (ARF)/Best Replacement Factor (BRF)/Technical Replacement Factor (TRF)									
6	RAW SPARES									
7	REPAIR FACTOR**									
8	NET SPARES									
9	NON-CONFORM ANCE FACTOR									
10	FINAL SPARES									
11	LOS									
12	RAW LOT REQMT									
13	SAFETY FACTOR***									
14	NET LOT REQMT									
15	INVENTORY (NAVSEA)									
16	INVENTORY (ICP)									
17	FINAL LOT REQMT									
18	AVAILABILITY TIMEFRAME									
COST ANALYSIS										
19	LOT MATERIAL COST									
20	LOT OVERHEAD COST									
21	TOTAL LOT COST									

*This figure should include all additions/deletions based on ECPs, nors, MACHALTs, ORDALTs, SHIPALTs, etc., as well as any INCO and MAM requirements.
** Will not be used for consumable.
*** Will not be used in every case.

Guidance for completing LOT Requirements Analysis Worksheet

STEP 1- Input application names, quantities of DMSMS parts per application, and numbers (quantities) of each application to lines 1, 2 and 3 of the LOT Requirements Worksheet. Ensure parts per application include additions/deletions as a result of ECP, NOR, ORDALT, SHIPALT and MACHALT impacts, as well as INCO and MAM material where appropriate. Also ensure that the number of applications includes both current and planned shipboard and shore-based installations, systems used in test/training environments, and any other known locations. The program office may need to develop an average for each number of applications in order to incorporate any anticipated annual increases or decreases in individual application populations.

STEP 2 - Calculate total population per application= QUANTITY PER APPLICATION * NUMBER OF APPLICATIONS. Place in line 4. Sum across to determine total projected population of DMSMS parts.

STEP 3 - Obtain annual failure rate for the DMSMS item and place in line 5. This figure will generally be a Technical Replacement Factor (TRF) or Best Replacement Factor (BRF). For many stock numbered items, BRFs will be available via queries to the DLA database or Weapon Systems File (WSF). Alternately, the program office may need to contact equipment manufacturers, life cycle or inventory managers to obtain TRFs for both stock numbered and non stock numbered parts. When available, Application Replacement Factors (ARFs), which provide unique failure rates for individual item applications, should be used for this calculation.

STEP 4 - Calculate: Spares necessary to support annual requirements per application= (TOTAL PART POPULATION*REPLACEMENT FACTOR), place results in line 6 and sum across to determine raw annual spares requirement.

STEP 5 - Calculate annual percentage of DMSMS items which are normally expected to be repaired and returned to service. Subtract this percentage from 100%, multiply the result by line 6 to determine a net spares requirement and place the figure in line 8 ((100% - % ITEMS REPAIRED) * RAW SPARES REQUIREMENT).

STEP 6 - Calculate factor for material/part non-conformance (as required). This figure should represent the percentage of parts which are normally expected to fail upon initial installation or in the course of long term storage. Multiply this percentage by line 8, and then add the figure derived to line 8 to determine final spares and place in line 10 ((NONCONFORMANCE FACTOR * NET SPARES) + NET SPARES).

STEP 7 - Calculate raw LOT requirements. Anticipated LOS for each listed application should be determined and placed in line 11. This figure should then be multiplied by final spares requirements, (LOS (YEARS) * FINAL SPARES REQUIREMENT) and these figures summed across in line 12 to determine raw LOT demand projections for the DMSMS part.

STEP 8 - Develop safety factor (as appropriate) and place in line 13. This may be a percentage or lump sum adjustment based on historical data from the calculating activity, and is

intended to offset the inherent imprecision in deriving LOT quantities. If the program office is confident in the accuracy of the LOT projection, this calculation will be unnecessary; moreover, this factor should only be used for internal NAVSEA projections, and should not be integrated into requirements forwarded to ICPs for Navy or Service-wide procurements. Multiply the adjustment percentage by the total in line 12, and then add the two figures, or add the lump sum factor directly to line 12, to determine net projected LOT requirements. Place results in line 14. ((SAFETY FACTOR * RAW LOT REQMT) + RAW LOT REQUIREMENT) or (SAFETY FIGURE + RAW LOT REQUIREMENT).

STEP 9 - Calculate current inventories of the DMSMS item. If NAVSEA activities hold stocks of DMSMS material, these quantities should be identified and included in line 15. In addition, DMSMS inventories may be held at DLA, NAVICP or other ICPs, and these quantities should be placed in line 16. The purpose of including these inventory figures is to 1) assess potential for adjusting the net LOT figure (step 10), and 2) provide a rough baseline for estimating continued item availability (step 11).

STEP 10 - Determine final LOT requirement. The appropriate adjustment to the net LOT figure will depend on the scope of the DMSMS analysis. If the projection is a total Navy or Service calculation, it may be appropriate to use central inventories to offset LOT quantities. However, if the analysis is developed on a more limited scale, the net requirement should not be automatically reduced by the amount of stock available in the supply system since centrally managed items are available to the first requisitioner. In this case, the only quantities that have the potential to directly offset the LOT projection are those held specifically by NAVSEA activities. Nonetheless, supply system queries may be useful for evaluating adequacy of the LOT projection, especially if items are deemed to be in long supply or if changes in supply/demand factors are anticipated. If either of these situations is identified by the ICP, the LOT figure may also warrant modification based on central availability of item stocks. In all cases, the program office should ensure close coordination with stocking activities to determine the appropriate level of adjustment. The final LOT requirement projection should be placed in line 17.

STEP 11 - Evaluate availability timeframe. The quantity of stock held or due-in centrally/in-house, when compared with total Navy/in-house monthly demand, may allow calculation of a rough timeframe for problem analysis before the DMSMS item becomes completely unavailable. The program office should project this timeframe (if feasible) and record on line 18, and utilize the information during resolution analysis as detailed in Section 4.

NOTE: This analysis (step 11) may suggest that sufficient on-hand or due-in inventory exists to support LOT DMSMS requirements. In this case the program office should document calculations and provide recommendations for case closure. However, the program office should also validate item management policies and storage arrangements in place to ensure enhanced visibility and monitoring of material drawdown to support LOT item availability.

STEP 12 - Project total material costs for the LOT buy and record in line 19 of the LOT Requirements Worksheet. This figure may be obtained by requesting a quote from manufacturing sources based on the total LOT quantity (it should be noted that sources may include aftermarket manufacturers or emulation activities as discussed below). If a quote is unavailable, obtain the current unit price for the DMSMS item and multiply by the LOT quantity. Ensure that item testing requirements and all other cost factors are considered.

STEP 13 - Calculate LOT buy overhead costs and record in line 20. This figure should include storage and handling requirements for the DMSMS item for the anticipated LOT or life of service, and the cost calculation should be indexed as necessary for both inflation and the effects of a declining item population due to drawdown.

a. Storage requirements: Calculate total storage space needed, identify any unique environmental requirements, and then develop a LOT cost projection for an appropriate facility. The program office will need to determine availability and cost to lease DoD/OEM storage facilities or develop cost projections for construction of a new storage area (as necessary).

b. Handling requirements: Assess requirements for inspection, de-packaging, test, repackaging, and shipment of DMSMS items, and any additional material management actions required to maintain item readiness.

STEP 14 - Sum total LOT buy cost (material plus overhead) and record in line 21. Also determine LOT buy execution timeframe, from the commencement of procurement time through material delivery.