



U.S. AIR FORCE



MTAPP POSITION PAPER

*Addressing Critical Department of Defense Supply Chain Needs:
Kitting of Spare Parts*





DoD Supply Chain: Kitting - What Small Business Must Know

Why MTAPP covers this topic?

MTAPP is in a unique position of examining the supply chain landscape from the perspective of the end users, buyers, and producers of the goods. MTAPP has strategic relationships across the DOD including representatives from the armed forces, the DLA, major prime contractors, and the commodity councils.

MTAPP uses a needs driven approach to find opportunities where agile small business can solve major supply issues within the DOD while simultaneously growing and becoming more competitive.

This position paper will provide data analysis, synthesis, and conclusion that should aid small businesses in positioning themselves in the competitive market. The ultimate goal of this paper is provide small businesses with a framework in which to understand what drives government needs and to provide businesses with a detailed view on the highlighted issues.

What this report presents?

This report has been written to provide MTAPP Member suppliers with an accurate status report on the efforts and policies of the top organizations that represent the MTAPP customer base. This report does not make the case to pursue the report's respective findings. Instead, this report should give businesses insight into each subject area and the potential to position themselves for future sales.

SB Kitting Opportunities What SB Must Know:

Summary of MTAPP Findings:

- The prolonged deployment of aircraft in military operations, maintenance and sustainment of aging systems is an established and long term systemic challenge to the Air Force supply chain.
- It is forecasted that the Air Logistics Centers (ALC) will face a maintenance funding gap for FY 2007-FY2010.
- As a result of the funding gap, the ALCs and their supporting DLA infrastructure are seeking new and innovative ways to sustain their aging aircraft and look to their supply base for cost effective solutions.
- Third party logistics solutions including kitting of part & repairs for in service military vehicles is one approach being deployed by the DLA to address these gaps.
- Kitting solutions will help the depots move towards their ultimate goal of reducing the number of suppliers to lower inventory and procurement costs, streamline the procurement process, reduce delivery times, and improve quality controls.
- Immediate opportunities exist for small businesses to provide part sequencing services, parts consolidation, on-site warehousing and repacking to ALC depots.



Introduction

During the recently completed MTAPP Research Study Update effort, both the Air Force depots and the DLA identified the development of third party logistics and kitting capabilities as critical for small business manufacturers preparing themselves for the changes presented by the transformation. The MTAPP Research Study effort concluded that suppliers who can expand their capabilities from components to integrating the next order assemblies or group of components, will be able to fulfill the needs of the DoD in support of battlefield repairs and sustainment logistics. Addressing this need will lead to improvements in the economics, efficiency, and effectiveness of the Air Force and DoD supply chain.

This position paper includes a presentation of data analysis, syntheses, and conclusions that result in a position statement regarding the stated supply need. The objective of this document is to provide the readers and key stakeholders most impacted by the identified need a succinct view of the issues and its interrelated system components. The paper also proposes an action plan for MTAPP to participate in addressing these requirements. This document will be used for online knowledge sharing and elicit feedback from individual stakeholders, contributors, and MTAPP companies.

The Changing Air Force and DoD Supply Chains

Air Force Materiel Command (AFMC) has embarked on an enterprise-wide Business Transformation aimed at integrating multiple purchasing and supply processes into a single end-to-end process that spans the Air Force supply system. The goals of this transformation include increasing materiel availability by 20%, reducing sourcing cycle times by 50%, and reducing total purchase and repair costs by 20%¹. A cornerstone within this effort is the implementation of an integrated PSCM Business Model that utilizes cross-functional commodity councils to formulate AFMC wide purchasing strategies. Air Force Contracting is adopting the commodity council concept to better leverage its spend and improve its

¹ Kim Powell, AFMC presentation, “*Sustainment Transformation Awareness*” (November 8, 2005)



customer responsiveness. Commodity councils' objective is to identify crucial commodities for centralized management. The rewards of implementing the commodity council's concepts are in eliminating duplication of effort, and in minimizing supply chain cost through integration / collaboration. Eight commodity councils were chartered across the three Air Logistics Centers. The are in Landing gears, power systems, instruments, communications, aircraft structural components, support equipment, and aircraft accessories. Our analysis of the participation rates of small business for each of the commodity councils shows small business range from 8.8% to as high as 49%.

Kitting Demand Drivers

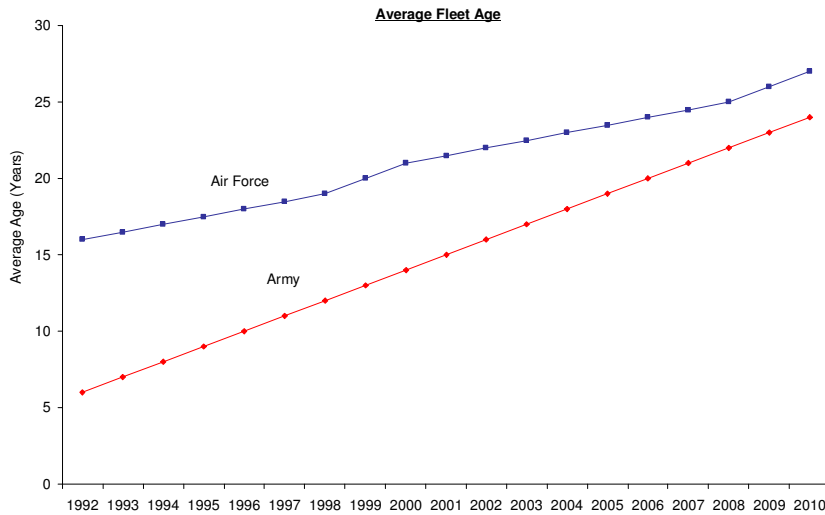
The prolonged deployment of aircraft in military operations, maintenance and sustainment of aging systems become a challenging supply problem. The Air Logistic Centers (ALC) are consistently tasked in making sure that weapons system availability remains high and downtime related to supply or maintenance is minimized. The ALCs are challenged to meet this objective in tight budgetary environment. It is forecasted that the ALC will have a funding gap every year through 2010². This requires that the ALC seek innovative ways to sustaining aging aircrafts and look to the industrial base for cost effective solutions. These solutions range from addressing logistics support for repair parts, inventory replenishment of spares, to seeking new technologies and processes which address corrosion and structural fatigue problems. Sustainment is becoming a defense transformation priority. It is about getting the most out of the service assets, equipment, and weapon systems, which means an extension of the useful life for most deployed systems. Exhibit One shows the trend in the average age of the aircraft fleet of the Army and the Air Force.

² Ibid; GAO, *AF Depot Maintenance – Improved Pricing and Cost Reduction Practices Needed* (GA) 04-498 (June 2004)



EXHIBIT 1

Air Force and Army Fleet Are Aging
No recapitalization of fleet expected in the near term



Source: Rand AGING AIRCRAFT Workload and Material Consumption Life Cycle Patterns (Oct. 2005)

Our interviews indicated that third party logistics solutions such as part and repairs kitting solutions will be a high value add. The aggregation and transaction cost associated with procuring a group of parts may not be the most effective and economic approach for the depots. The logistics centers are seeking to reduce their number of suppliers to lower procurement and inventory costs, streamline the procuring process, reduce delivery times, and improve quality controls.

Kitting Demand Centers

At present the major stakeholder in small business kiting capability is the DLA. As the BRAC changes the will move all procurement of spares to the DLA take effect, DLA is challenged to move more parts with fewer personnel at increased speed. The data from FY 2005-FY2006 show not only the DLA’s commitment to kitting as a potential solution to some of this challenge but also the rate at which they are executing a clear kitting mission.



EXHIBIT 2: DLA DSCR Kitting Growth

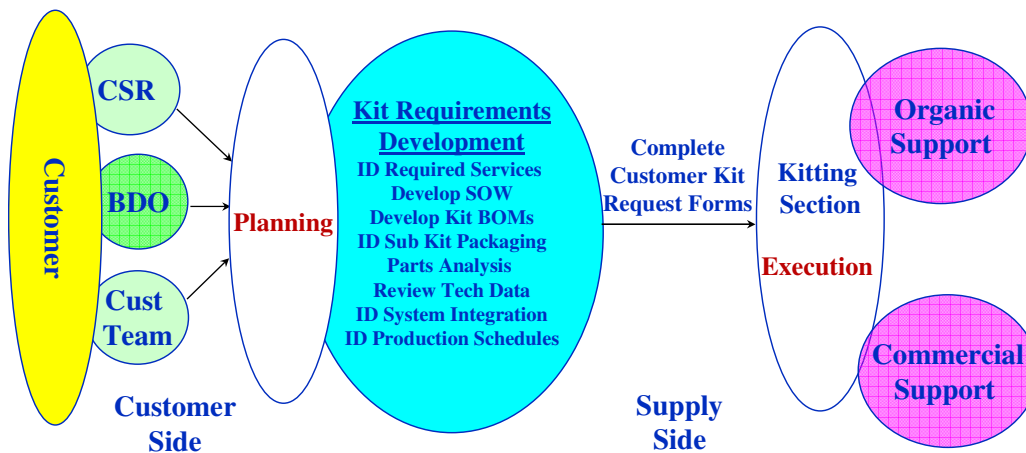
FY 05-06 Kitting Summary	FY 2005	FY 2006	Growth
Total Kit NSNs	714	900	26%
Total Components	6,970	10000	43%
FY 05 Kit Sales (\$M)	\$35.20	\$60	70%

DLA’s DSCR has established a program section and the requisite structure to execute further growth in this area. The mission statement for their DSCR Kitting Section is as follows:

“To establish kits for DLA's aviation customers by developing and executing a design strategy for commercial and organic kit building logistical services, tailored to customer specifications.”

The process DLA has established to accomplish this mission is shown in the following graphic.

EXHIBIT 3: DLA DSCR Kitting Process



Kitting Capabilities Overview



Part and Repairs Logistics Services

The repairs and parts sustainment activity is comprised of new parts (components and supplies) and redistributed parts used in scheduled and unscheduled maintenance, repairs and modification of aircraft and engines already in use. These are two distinct groups: the new parts group and the redistribution group. In the new parts group, the original equipment manufacturer provides the new parts, components and supplies for use on existing airframes and engines. In the redistribution group, suppliers (which do not always include the OEM) provide surplus and repaired parts or components for use on existing airframes and engines. Many of these suppliers also provide maintenance and repair services for aircraft parts and components. This segment is very much applicable to older aircrafts and weapon systems. In most instances, the logistic centers replace parts and components based upon time or usage, either when they wear out or when a specific manufacturer recommendation require them to be replaced. As a result aging aircrafts and engines need substantially more parts than newer versions due to increased wear and tear and greater age and usage. Aging aircrafts generally undergo more frequent parts replacements and repairs as the age of the aircraft increases.

Immediate opportunities exist for small businesses to provide parts sequencing services, parts consolidation, on-site warehousing and repacking to the ALC depots. At the recommendation of the Joint Council on Aging Aircraft (JCAA), MTAPP analyzed the small business participation rates for NSNs requiring kitting of parts. An analysis of NSN spend data from 2000-2005 showed that across the DoD over \$2 billion was spent on NSNs involving kitting. Of this spend, 72% was to small business. The kitting solutions are tailored logistics services in support of aging aircrafts. Some identified kitting solutions are where wing overhaul kits on the A-10 and engine upgrade kits on the F110 engines.



EXHIBIT 4

FSC(9999)	Descriptor	2005	5 Year Total
1680	Msl Aircraft Accessories and Components	\$ 11.20	\$ 116.85
1560	Airframe Structural Components	\$ 6.38	\$ 139.61
1650	Acft Hydraulic, Vacuum & De-icing Sys Comp	\$ 5.30	\$ 55.57
5330	Packing and Gasket Materials	\$ 4.14	\$ 43.21
2915	Engine Fuel System Components, Aircraft & Missile	\$ 3.25	\$ 68.04
2910	Engine Fuel Sys Components, Nonaircraft	\$ 3.22	\$ 21.59
1660	Aircraft AC, Heating, and Pressurizing Equipment	\$ 2.64	\$ 97.99
2815	Diesel Engines and Components	\$ 2.64	\$ 21.39
4810	Valves, Powered	\$ 2.52	\$ 24.89
3040	Miscellaneous Power Transmission Equip	\$ 2.28	\$ 11.98
2920	Engine Electrical Sys Comps, Nonaircraft	\$ 2.26	\$ 30.08
4320	Power and Hand Pumps	\$ 2.10	\$ 54.65
5999	Misc Electrical & Electronic Components	\$ 2.05	\$ 302.44
2840	Gas Turbines and Jet Engines, Acft & Comps	\$ 1.64	\$ 83.43
2995	Miscellaneous Engine Accessories, Aircraft	\$ 1.35	\$ 23.37

Specific Supplier Kitting Requirements

There are two basic types of kitting contracts described by the DLA as follows:

- Two types of solicitations and Statements of Work
 - Simplified Acquisition Procedures/Micro Purchases
 - Under \$100,000/\$2,500
 - Performance = meeting delivery date
 - One-time Purchase Order for specified quantity
 - Generic SOW
 - Solicitations are posted to DIBBS, the Procurement Gateway
 - RFQ, or sent to vendors on our mailing list
- Long-Term Tailored Support
 - Contract duration up to 5 years
 - Guaranteed minimum value
 - Forecasted kit delivery schedules
 - Detailed SOW tailored to specific customers and systems
 - Posted to DIBBS, Fed Biz Ops & Procurement Gateway RFP

Each RFP and eventually Statement of Work (SOW) from a DoD procurement group details the specific requirements for supplier supported kitting efforts – these are especially stringent within the aviation supply chain as detailed by the Defense Logistics Agency/Defense Supply Center Richmond (DLA/DSCR). Kitting solution consist of



obtaining new consumable component parts, assembling of parts into pre-defined kits, and ensuring availability of all consumable kits required to meet contract delivery requirements. In obtaining the component parts, the MTAPP supplier will need to utilize existing DoD suppliers and the established supply system to the maximum extent possible.

General Requirements:

Department of Defense Inventory Control Points (ICPs) are expected to be the primary source of supply for the component part National Stock Numbers (NSNs) that comprise each supplier created kit. In many cases, the procuring group will also detail requirements for their own managed component part NSNs (See Appendix for an example from DLA/DSCR) Without exception, the MTAPP member supplier must source all component NSNs identified as Flight Safety Critical Application Parts (FSCAPs) and Critical Safety Items (CSIs), from the DoD/DLA supply system.

The challenge for SB manufacturers is that often the service managed NSN PID data is not available. In these cases the supplier must contact the Contracting Officer to obtain PID data (when required for commercial spot buys) from the appropriate military service Item Manager. In addition, the supplier is responsible for the timely ordering of components to hold levels of inventory sufficient to meet contract delivery requirements. This level of inventory management requires both a capable MRP system and the skill to successfully determine safety stock requirements.

In cases where the kit components are unavailable through DoD/DLA, the supplier will be authorized to procure material from approved commercial sources. This source of supply visibility and supply chain management capability will need to be included during the MTAPP members preparation of the proposal. An example of the level of detail and the information requirements of the service are provided in the Appendix.

System Interface and Integration:



In order to successfully build kitting capability, the MTAPP member will need to establish interface capability with “Defense Automatic Addressing System and Web Customer Account Tracking System.” In order to accomplish this, the supplier will need to be capable of sending, receiving, and processing various electronic transactions in accordance with Military Standard Requisitioning and Issue Procedures (MILSTRIP), Military Standard Transaction Reporting and Accounting Procedures, Military Standard Transportation and Movement Procedures, and Military Standard Billing System, as applicable.

Kit Configuration Requirements

Current kit configurations are identified in the applicable Government or commercial drawing(s), as cited in the PID for each kit. The DoD does not allow for deviations from the specified kit configurations unless the procurement groups Contracting Officer approves in writing (coordination with the Engineering Support Activity (ESA) may be required). It is, therefore, critical that the MTAPP member attempting to win a kitting based contract consider all eventualities including loss of supply when planning for their bid.

All kitting proposal offers made on a specific kit are guided in large part by the kit drawing. The DoD will not accept any offer with changes, alternate parts, or substitutions. When absolutely necessary, the MTAPP member supplier can provide an alternate offer, in addition to their compliant offer. In this case, MTAPP member should clearly mark the “alternate offer”, and show the original kit component(s) and each component part being offered as an alternate part. All requests for alternate offers must also contain documentation as to the rationale for the request to utilize the alternate part(s).

Forecasting Requirements:

MTAPP member suppliers must also be able to forecasting the requirements for component part NSNs to ensure requisitions are placed with the appropriate source of supply in time to meet the required kit delivery date. This is not provided by the DoD and requires a detailed understanding of your down stream supply chain.



Ordering and Sourcing of Kit Components:

The supplier must be familiar with and able to utilize MILSTRIP for ordering component parts and must ensure that requisitions are initially placed with the appropriate ICP. Once the contract is in place, the supplier will be required to review the unit of issue (U/I) for each component part to ensure accurate and economical ordering of parts. This challenge can be increased when the kit requirements (Units Per Assembly) are different than the standard unit of issue (e.g. U/I equals hundred, kit requires 50 each), and the part may be used in multiple kits. When the same part is used in multiple kits, the sum of the quantities should be placed on a single requisition. This requirement can lead to excess inventories and inventory holding costs.

Ability to Make Commercial Spot Buys:

Based on historical data and taking into account the increasing demands on the DLA for in service active duty systems, MTAPP members should be prepared for non-CSI/FSCAP components to **not be** available from DoD/DLA wholesale supply inventory after contract award (based upon requisition status). In these cases, the supplier can be authorized to initiate commercial spot buys from DLA/ESA approved commercial sources for the quantity needed to complete the kit(s) and make ready-for-issue. This requirement again raises the importance of true supply chain management skills. Non-DLA managed NSNs will require coordination with the appropriate military service Item Manager to obtain the current configuration information and approval to buy commercially.

First Article Test Requirements:

Prior to submitting a bid, MTAPP member should determine the first article testing (FAT) requirements identified for all components within the DoD PID or Quality Matrix Report that are not purchased from Government ICPs. In most cases, the DoD will not accept price adjustments on firm-fixed price procurements. In extreme circumstances where a price



adjustment may be justified due to a change in a SUP, a price adjustment request shall be forwarded to the post-award Contracting Officer for review. Approval will be based on the magnitude of the change, and impact on the vendor compared to the cost of the modification. This contingency planning needs to be integrated into each of the suppliers bid efforts.

Assembly, Packaging, and Marking Requirements:

The MTAPP supplier must be able to comply with the kit preservation, packaging, packing, and marking requirements specified in the contract. This can and will include the ability to provide unique identification tags (UID) and RFID. The supplier is always responsible for assembling, packaging and marking sub-kits within a kit when sub-kit requirements are specified in the Government or Commercial Drawing. Sub-kit identification numbers and special instructions pertaining to assembling sub-kits will be provided when the service customer requests/identifies sub-kit requirements. This requirement can be an obstacle to some small business MRP systems. MTAPP recommends that suppliers contact their software vendors prior to bidding on a kitting opportunity.

Reporting Requirements:

The supplier will be required to maintain inventory and cost data expenditure records/reports for potential audit/review by the government. (Note: samples of these reports are available via the DSCR-FAGBC kitting website.)

MTAPP Member Approach

In order to successfully adapt to these changing supply chain requirements, MTAPP members will have to establish relationships with major suppliers with logistics support contracts within industry. The relationships should target both major OEM component suppliers such as Rolls-Royce, Honeywell, Goodrich, etc and also suppliers with established Contractor Logistics Support (CLS) operations such as DRS technologies, Lockheed Martin, Boeing, etc. MTAPP suppliers should seek to establish long term relationships with these



OEM and CLS suppliers. These companies all seek to integrate small businesses with their delivered logistics solutions. These contractors all have small business subcontracting plans and will look to leverage small business flexibility and low overhead to deliver cost effective logistics services.

EXHIBIT 5

OEM	Product(s)
Rolls-Royce	Engine parts and modules
Honeywell	Fuel controls, engine systems and accessories, aircraft lighting, aircraft fasteners, etc
Teradyne	Avionics test and repair solutions for LRUs

An immediate near term opportunity lies with working with Boeing Logistics Support Systems (BLSS) in San Antonio, TX. BLSS was established in 1998 as a maintenance and modification center for large aircraft and is located at the old Kelly Air Force Base. BLSS provides the Air Force with maintenance and modification programs on the KC-10, KC-135, C-17 and C-130 programs. The partnership with BLSS will position MTAPP companies to potentially partake in a CLS services contract from the Oklahoma City Air Logistics Center (OC-ALC). The OC-ALC has a requirement for CLS services in support of thirty-two KC-10 aircrafts. The contract will be for two-year basic period with a minimum of 2 two-year options with a possibility of up to 3 one-year incentive options. Major logistics elements will include, but are not limited to providing worldwide operations and logistics support with FAA certified parts and maintenance for the KC-10 fleet. This effort consists of four general categories of support are logistics integration and support, engine maintenance, aircraft maintenance, and modifications. The current CLS is Boeing. The solicitation is expected in January 2007.

MTAPP Conclusions

Kitting is a DoD wide endeavor and the epicenter of activity in this area is the DLA. To facilitate the growth of kitting, DLA has created both “Simplified Acquisitions” for Micro Purchases and Long-Term Contract guidelines requiring more detailed proposal formats and commitment from the MTAPP supplier. The DoD is continually looking at innovative



methods to better support the warfighter and kitting is a solution that both speeds delivery of capability to the battle field and reduces supply chain costs.

For MTAPP small businesses to position themselves to get the most of the kitting opportunity, the program must assist them in becoming knowledgeable about the specifics of selected number of weapons systems logistic supply chain. This will require MTAPP analyzing supply-and-demand flows and matching them with the cost and performance (speed, reliability, flexibility) requirements of the Air Logistics Centers. Potential benefits (such as the savings derive from managing a complex, labor-intensive, and a fragmented supply base and by reducing suppliers' lead times) will have to be quantified. The critical success factors such as information technology systems should be identified during the capabilities assessment. MTAPP should also consider developing and improving current logistic capabilities within its current stable of suppliers. It may seek to identify small businesses with logistics services capabilities to bring into the program. The new companies will provide a good foundation to create collaborative partnering and team among MTAPP companies as they seek to address logistics needs of the ALCs and subcontracting opportunities with the CLS companies.



APPENDIX: Kitting RFP Example

2840- **Kitting**, F-15/ F-16, Engine Augmenter.

[Search for RFP DLA Kitting on SAVVY.com](#)

General Information

Document Type: PRESOL
Posted Date: Dec 12, 2005
Category: [Aircraft Components and Accessories](#)
Set Aside: N/A

Contracting Office Address

Defense Logistics Agency, Logistics Operations, Defense Supply Center Richmond,
8000 Jefferson Davis Highway, Richmond, VA, 23297-5000

Description

NSN: 2840-01-526-8093, F-15/ F-16, Engine Augmenter. DSCR has an unrestricted technical package available. An electronic copy of the technical data package/kit component list is available by accessing the FAGBC FTP site. Instructions and logon are in the remarks page of the solicitation. FOB: Destination, Inspection/Acceptance: Origin. Requested delivery is 340 DARO. This kit is coded commercial and is being procured IAW FAR 15. Three kit component parts being procured in the commercial market have contractor first article test requirements and one has government first article. This kit is a critical application item and contains flight safety items, configuration management, export control, and a 100% quantity option. Solicitation will result in a firm fixed price purchase order and is being solicited as a small business set aside, full and open competition after exclusion of sources. The final contract award decision may be based upon a combination of price, past performance and other evaluation factors as described in the solicitation. The solicitation will be issued on 15 Dec 2005 and close on 17 Jan 2006. This solicitation and any changes will be available via the **DLA** Procurement Gateway at <http://progate.daps.mil/home> on the issue date cited in the **RFP**. To download and view these documents you will need the latest version of Adobe Acrobat Reader. This software is available free at <http://www.adobe.com>. A paper copy of this solicitation will not be available to requestors.

Additional RFP Information:

The Defense Supply Center Columbus (DSCC) seeks expression of interest regarding DSCC's desire to establish a Government supply contract for various kitting projects.

The Defense Logistics Agency (DLA) definition of kitting is two or more assorted items issued as a single item of supply. The kit will have a Bill of Material and be used for a specific purpose. A kit will also consist of government approved components assembled in government approved packaging to be supplied to a storage depot or directly to the customer.

Delivery destinations would include Defense Logistic Agency (DLA) depots and direct vendor delivery locations for Military bases located in the United States and worldwide. This



prospective initiative will encompass multiple NSNs of various types, with a potential to add items over the life of the contract(s).

This initiative anticipates a Request for Proposal (RFP), utilizing Best Value Source Selection criteria to award Indefinite Delivery/Indefinite Quantity contract(s). Multiple awards are possible. The type of contract contemplated for this program is a Firm Fixed Price (FFP) or Fixed Price with Economic Price Adjustment (FP w/EPA) Indefinite Quantity Contract (IQC) with one or more option periods of one or more years. Standard long term contracts at DSCC are for a one year base period with four (4) one year options for a total contract length of five (5) years.

Suggestions for other long term arrangements will be considered. The Government seeks information on vendors' capabilities and ideas for providing supply support.

Depending upon the nature of the responses to this request, the Government will determine such things as acquisition strategy, source selection criteria, production lead times and economic order quantities.

Each contract entered into under this prospective program will include surge and wartime readiness sustainment requirements. We anticipate the use of Electronic Commerce.

Topics that vendors may wish to comment on include, but are not limited to:

The overall feasibility and cost effectiveness of such an initiative Any Economic order quantities that lend themselves to price breaks.

Recommendations for use of existing Government furnished material Industry capabilities for long term support.

If required, how would you help develop and configure a new kit? How would you deal with kit components that have a First Article Test (FAT), Critical Safety applications (CSI) or Shelf Life requirements?



How do you monitor and make configuration changes?

What would be the best method for acquiring sole source or long lead-time items?

Would you buy from DLA if DLA offers the best deal in respect to price and/or delivery?

What recommendations would you make if required to buy DLA managed kit components?

Can you supply special packaging?

Do you have a plan for handling surge demands?

If customer requires services other than supplying actual kits, can you do that? (Such as stocking bins, re-ordering material, etc.) What other services in conjunction with kitting would you recommend?