THE UNDER SECRETARY OF DEFENSE

3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

DCN:5963

JUN 30 2004

ACQUISITION,
TECHNOLOGY
AND LOGISTICS

MEMORANDUM FOR ACTING UNDER SECRETARY OF DEFENSE (ACQUISITION, TECHNOLOGY AND LOGISTICS)

SUBJECT: Industrial Joint Cross Service Group (IJCSG) Military Value Analysis Plan

The Military Value Analysis Report of the Industrial Joint Cross Service Group is attached. It was revised based upon the comments and suggestions contained in the Infrastructure Steering Group (ISG) memorandum of June 4, 2004. All ISG required changes were incorporated into this revision.

Significant revisions resulting from ISG comments include:

- Only FY 2004 data is used to assess facilities current capabilities and Military Value.
- The report was revised to reflect the use of FY 2004 condition codes excepting for any new construction resulting from FY 2004 Appropriations.

Michael W. Wynne
Chairman, Industrial Joint Cross
Service Group

Attachment as stated

cc: IJCSG Members

Industrial Joint Cross Service Group

Military Value Analysis Report

June 28, 2004

Section 1: Introduction

The Industrial Joint Cross Service Group (IJCSG) is tasked with designing attributes, metrics, a quantitative scoring plan, and data call questions to assess the military value of DoD industrial facilities within the framework provided by the Selection Criteria for Closing and Realigning Military Installations Inside the United States. The intent is to apply the responses to the data call to all organic and government owned contract operated installations and facilities performing industrial functions for the Department of Defense.

As was the case with the capacity analysis, the disparate nature of the functions being analyzed by the IJCSG does not lend itself to a "one size fits all" analytic approach. Three sub-groups were established based upon the three main industrial activities to be analyzed by the IJCSG, Maintenance, Munitions and Armaments, and Ship Overhaul and Repair. Each subgroup is headed by a principal member of the IJSCG, that is also a subject matter expert. Each of those subgroups, in turn, are composed of subject matter experts from each Service, the joint staff and supported, as necessary, by contract personnel.

Section 2: Military Value Approach and Scoring Plan

Each of the sub groups developed an identification of the work being performed and listed as functions and sub-functions. Measurable characteristics, or attributes, were then developed for each function and keyed to the Selection Criteria for Closing and Realigning Military Installations Inside the United States. A numerical approach, or metrics, for measuring attributes were then developed along with specific data call questions. Each step has a weighted value based on a 0-100 percent scale.

The functions and subordinate functions identified by the IJCSG sub groups as necessary to assess military value are as follows:

- Maintenance
    - Depot Level
    - Combat Field Support/ Intermediate Levels

- Munitions and Armament (Industrial Base for Manufacturing, Production)
    - Munitions Production, Maintenance, Storage and Demilitarization
    - Armaments Manufacturing/Production
- Ship Repair
    - Depot Level
    - Intermediate Level

The attributes, metrics, questions, rationale and score plan for each of the three sub groups are detailed as follows:

MUNITIONS AND ARMAMENTS

The IJCSG Subgroup, Munitions and Armaments, is responsible for assessment of the entire life cycle of munitions (except Research, Development, Testing, and Evaluation (RDT&E)) and the manufacturing/production of armaments within the government owned industrial base. This group evaluated the military value of installations based on these key functions.

- Munitions Production
- Munitions Maintenance
- Munitions Storage and Distribution
- Munitions Demilitarization
- Armaments Manufacturing/Production

Criterion 1 assesses the capability and capacity to maintain munitions and armaments readiness from a Joint perspective. This means having munitions and armaments available in the right place at the right time. To do that, you must have the appropriate skill base and facilities necessary to produce, maintain, store, distribute and demilitarize those commodities.
This Criterion addresses operational readiness requirements as identified in the Services budgets. Across all functions, the need for capability and capacity in support of readiness weighted this criterion high.

Criterion 2 assesses the availability and condition of the industrial base's infrastructure. What is the industrial base's ability to support mission requirements and maintain the readiness status

identified in Criterion 1? This Criterion's assessment of the condition of the facilities and the facilities potential for expansion becomes a significant factor when considering relocation or realignment of functions. Criterion 2 ranks 3rd among the four criteria because the condition of a facility is not as important as the capability to produce the capacity required to sustain military strategy.

Criterion 3 assesses the ability to surge in support of requirements for emergencies. If we can size our base to respond to Criterion 3, we know we can respond to Criterion 1. Because of this factor, this criterion is weighted highest across all munitions functions.

Criterion 4 assesses fixed costs, number of employees (both contractor and government), and size of payroll. It is difficult to compare costs from one facility to the other (because of variances between government owned and government operated and government owned and contractor operated; bomb production versus small caliber production, etc). Because of this factor, the cost data is weighted low.

Consistently though out the analysis, Criterion 3 (addressing surge capability) ranked number 1, Criterion 1 (addressing readiness) ranked number 2, Criterion 2 (addressing condition and expansion capability of the facility) ranked number 3, and Criterion 4 (addressing cost) ranked number 4.

Scoring Mathematics:

The majority of the questions are normalized using either the maximum or minimum number of points reported for each question. The following is how this scoring is determined:

> **Method 1:** *Highest Number is Desired*. For questions stating, "Facilities receiving the most points will score 100%, and the remaining numbers will be scored by linear normalization to the highest number". We will use the following calculation:
>
> The score (S_i) for question i is $S_i = \frac{x_i}{x_{\max}}$, where x_i = the number reported for question i and $x_{\max}$ is the maximum score among all the numbers reported. This approach will be adjusted accordingly if averages of the numbers are used to determine the score.

Method 2: *Lowest Number is Desired.* For questions stating, "The facility with the lowest number of points will score 100%"and the remaining numbers will be scored using the following calculation:

The score (S_i) for question *i* is $S_i = \frac{x_{\min}}{x_i}$, where x_i is the number for question *i* and $x_{\min}$ is the minimum score among all the numbers reported. This approach will be adjusted accordingly if averages of the numbers are used to determine the score.

Method 3: *Other Scoring*. Any other scoring approaches used are explained after each question.

FUNCTION: MUNITIONS PRODUCTION

(35%) CRITERIA #1 – The current and future mission capabilities and the impact on operational readiness of the Department of Defense's total force, including the impact on joint warfighting, training and readiness.

(60%) Attribute: Capability

(100%) Metric: Munitions Production Processes

1. (33.3%) Question: Which munitions explosive processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 1)

Table 1: Munitions Explosive Production Processes	**Last 2 Yrs**
1. Explosive and/or propellant cold cast cure to include vacuum casting and/or injecting capability.	
2. Melt pour, to include metal parts pre-conditioning and post pour controlled cooling.	
3. Precision explosive pressing, to include explosive billet machining and sufficient tonnage and press daylight clearance for missiles.	
4. Extrusion of explosives and propellants.	
5. Kinetic energy munitions precision weigh and fill of propellant.	
6. Loaded components and initiating devices (primers, delays, relays, detonators) to include drying, blending, and handling equipment that precludes direct personnel exposure.	
7. Infrared decoy flare pressing and/or extrusion.	

8. Smoke munitions mixing and pressing.	
9. Nitration of cotton linters or wood pulp.	
10. Nitration of hexamine.	
11. Manufacture of nitrate Esters.	

Rationale: Responses to this question will identify critical munitions production processes and highlight sources of duplication, multi-functional capability, and the availability or absence of a skilled work force. Table 1 provides the information needed to respond to the munitions explosive processes.

Scoring: The facility receives credit when they check the box that they performed the process within the last two years (FY 02 – FY 03). The facility that performs the most processes will score 100%. The remaining points will be scored using Method 1.

2. (33.3%) Question: Which munitions metal parts processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 2)

Table 2: Munitions Metal Parts	**Last 2 Yrs**
1. Deep draw steel cartridge cases.	
2. Grenade cargo metal parts.	
3. Projectile forging, heat treat, and machining.	
4. High frag projectile metal parts to include large caliber forging (1000 ton presses), heat treat, ultrasonic and machining.	

Rationale: Responses to this question will identify critical munitions production processes and highlight sources of duplication, multi-functional capability, and the availability or absence of a skilled work force. Table 2 provides the information needed to respond to the munitions metal parts processes question.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years (FY 02 – FY 03). The facility that performs the most processes will score 100%. The remaining points will be scored using Method 1.

3. (33.3%) Question: Which munitions load, assemble, and pack (LAP) processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 3)

Table 3: Munitions Load, Assemble, and Pack (LAP)	**Last 2 Yrs**
1. Navy gun ammo	
2. Mortar ammo	
3. Mines and Obstacle Clearing Charges	
4. Artillery ammo	

5. Tank ammo	
6. Missile warhead	
7. Medium caliber ammo	
8. Demolition	
9. Rockets	
10. Small caliber ammo	
11. Bomb body	
12. Grenades	
13. Missiles	
14. Torpedo	
15. CAD/PAD	
16. Propelling Charges	
17. Kinetic energy munitions	
18. Flares	

Rationale: Responses to this question will identify critical munitions production processes and highlight sources of duplication, multi-functional capability, and the availability or absence of a skilled work force. Table 3 provides the information needed to respond to the munitions LAP processes question.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years (FY 02 – FY 03). The facility performing the most processes will score 100%. The remaining points will be scored using Method 1.

(40%) Attribute: Capacity

(100%) Metric: Munitions Production Capacity

(100%) Question: What is your maximum munitions production capacity?

Rationale: This question will use data gathered in the capacity analysis data call question #521. The analysis will use output to identify sites suitable for relocation, reduction, or realignment of workload.

Scoring: Using the list of commodities identified in the capacity analysis data call question #521, the analysis will array the commodities into these categories (small caliber, medium caliber, mortar, tank, artillery/Navy Gun ammo, cluster bombs, bomb body, bomb components, missile, torpedo, energetics, mines, rockets, pyro/demo, and CAD/PAD). Comparisons will occur among facilities within the same category (i.e. facility X, Y, and Z all producing medium caliber munitions). Within categories, facilities receiving the most credits will score 100%. The remaining points will be scored using Method 1.

(15%) CRITERIA #2 – The availability and condition of land, facilities and associated airspace (including training areas suitable for maneuver by ground, naval or air forces throughout a

diversity of climate and terrain areas and staging areas for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.

(30%) Attribute: Facility Conditions

(100%) Metric: Condition of Facilities

(100%) Question: For the type of facilities identified in Table 4, enter floor areas in thousand square feet (KSF) for buildings in condition codes green/adequate/1 (GA1), amber/substandard/2 (AS2) or red/inadequate/3 (RI3). Provide information for buildings that are vacant and occupied.

Table 4: Conditions of Munitions Production Facilities

FAC	Definition	# KSF in green/adequate/1	# KSF in amber/substandard/2	# KSF in red/inadequate/3
1492	Explosives holding/transfer area			
1493	Explosives railway holding yard			
1494	Explosives handling/transfer area			
1497	Explosive ordnance disposal area			
2121	Missile maintenance/assembly building			
2125	Missile maintenance/assembly building, depot			
2221	Missile production plant			
2251	Weapon production plant			
2252	Weapon production facility			
2261	Ammunition production plant			
2262	Ammunition production facility			
4211	Ammunition storage, depot and arsenal			
4221	Ammunition storage, installation			
8923	Vehicle scales			

Rationale: Responses to this question will provide a measure of the condition of the facilities that may be used in relocation.

Scoring: The scoring for each facility is the weighted area of their total mission essential buildings in all condition codes. Using the formula below, facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

x_i=1(total sq ft of GA1) + .67(total sq ft of AS2) + .33(total sq ft of RI3)

(70%) Attribute: Expansion Capability

(40%) Metric: Buildable Acreage

(100%) Question: What are the total buildable acres at your facility?

Rationale: Looking at the number of buildable acreage will allow us to assess expansion capability. The analysis will use data from the Capacity Analysis datacall question #198 (total unconstrained acres).

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(60%) Metric: Unutilized Plant Capacity (UPC)

(100%) Question: In number of square feet, what is your UPC/unassigned munitions manufacturing space?

Rationale: UPC square footage will tell us how much space is available for immediate utilization, or utilization with minimal resources.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(45%) CRITERIA #3 – The availability to accommodate contingency, mobilization, and future total force requirements at both the existing and potential receiving locations to support operations and training.

(40%) Attribute: Capability

(100%) Metric: Munitions Production Processes

1. (33.3%) Question: Which munitions explosive processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 1)

Table 1: Munitions Explosive Production Processes	Last 2 Yrs
1. Explosive and/or propellant cold cast cure to include vacuum casting and/or injecting capability.	
2. Melt pour, to include metal parts pre-conditioning and post pour controlled cooling.	
3. Precision explosive pressing, to include explosive billet machining and sufficient tonnage and press daylight clearance for missiles.	
4. Extrusion of explosives and propellants.	
5. Kinetic energy munitions precision weigh and fill of propellant.	
6. Loaded components and initiating devices (primers, delays, relays, detonators) to include drying, blending, and handling equipment that precludes direct personnel exposure.	
7. Infrared decoy flare pressing and/or extrusion.	
8. Smoke munitions mixing and pressing.	
9. Nitration of cotton linters or wood pulp.	
10. Nitration of hexamine.	
11. Manufacture of nitrate Esters.	

Rationale: Responses to this question will identify critical munitions production processes and highlight sources of duplication, multi-functional capability, and the availability or absence of a skilled work force. Table 1 provides the information needed to respond to the munitions explosive processes question.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years (FY 02- FY 03). The facility that performs the most processes will score 100%. The remaining points will be scored using Method 1.

2. (33.3%) Question: Which munitions metal parts processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 2)

Table 2: Munitions Metal Parts	Last 2 Yrs
1. Deep draw steel cartridge cases	
2. Grenade cargo metal parts	
3. Projectile forging, heat treat, and machining	
4. High frag projectile metal parts to include large caliber forging (1000 ton presses), heat treat, ultrasonic and machining.	

Rationale: Responses to this question will identify critical munitions production processes and highlight sources of duplication, multi-functional capability, and

the availability or absence of a skilled work force. Table 2 provides the information needed to respond to the munitions metal parts processes question.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years (FY 02- FY 03). The facility performing the most processes will score 100%. The remaining points will be scored using Method 1.

3. (33.3%) Question: Which munitions Load, Assemble, and Pack (LAP) processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 3)

Table 3: Munitions Load, Assemble, and Pack (LAP)	**Last 2 Yrs**
1. Navy gun ammo	
2. Mortar ammo	
3. Mine and Obstacle Clearing Charges	
4. Artillery ammo	
5. Tank ammo	
6. Missile warhead	
7. Medium caliber ammo	
8. Demolition	
9. Rockets	
10. Small caliber ammo	
11. Bomb body	
12. Grenades	
13. Missiles	
14. Torpedo	
15. CAD/PAD	
16. Propelling Charges	
17. Kinetic energy munitions	
18. Flares	

Rationale: Responses to this question will identify critical munitions production processes and highlight sources of duplication, multi-functional capability, and the availability or absence of a skilled work force. Table 3 provides the information needed to respond to the munitions LAP processes question.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years (FY 02- FY 03). The facility performing the most processes will score 100%. The remaining points will be scored using Method 1.

(60%) Attribute: Capacity

(100%) Metric: Munitions Production Capacity

(100%) Question: What is your maximum munitions production capacity?

Rationale: This question will use data gathered in the capacity analysis datacall question #521. The analysis will use output to identify sites suitable for relocation, reduction, or realignment of workload.

Scoring: Using the list of commodities identified in the capacity analysis data call question #521, the analysis will array the commodities into these categories (small caliber, medium caliber, mortar, tank, artillery/Navy Gun ammo, cluster bombs, bomb body, bomb components, missile, torpedo, energetics, mines, rockets, pyro/demo, and CAD/PAD). Comparisons will occur among facilities within the same category (i.e. facility X, Y, and Z all producing medium caliber munitions) and a separate analysis will be performed on Components and LAP. Within categories, facilities receiving the most credits will score 100%. The remaining points will be scored using Method 1.

(5%) CRITERIA #4 – The cost of operations and manpower implications.

(80%) Attribute: Fixed Cost

(100%) Metric: Cost Required to Open the Doors

(100%) Question: What is the annual cost required for your munitions production facility to open the doors? Use data as of 30 Sep 03 and provide the information in thousands of dollars. (Include equipment maintenance, facilities maintenance, utilities, installation management, environmental compliance, environmental conservation, fire protection, safety, law enforcement, security guards, pest control, and snow/ice removal costs only.)

Rationale: Fixed costs will vary based on the size of the installation and the number of employees. As the analysis moves into the scenario phase and MVA looks at possible installation relocation, this information becomes a source for identification of installations with highest overhead.

Scoring: The facility with the lowest cost will score 100%. The remaining points will be scored using Method 2.

(20%) Attribute: Labor

(100%) Metric: Number of Employees and Size of Payroll

1. (50%) Question: What are the number of civilian government employees supporting munitions production and the size of payroll? Use data as of 30 Sep 03.

Rationale: The number of employees and size of payroll will help determine the cost of relocation and impacts to the local community.

Scoring: The facility with the lowest average salary will receive 100%. The remaining points will be scored using Method 2.

2. (50%) Question: What are the number of contractor employees supporting munitions production and the size of payroll? Use data as of 30 Sep 03.

Rationale: The number of employees and size of payroll will help determine the cost of relocation and impacts to the local community.

Scoring: The facility with the lowest average salary will score 100%. The remaining points will be scored using Method 2.

FUNCTION: MUNITIONS MAINTENANCE

(25%) Criteria #1 – The current and future mission capabilities and the impact on operational readiness of the Department of Defense's total force, including the impact on joint warfighting, training and readiness.

(60%) Attribute: Capability

(100%) Metric: Processes for Munitions Maintenance

(100%) Question: Have you inspected, tested and performed maintenance and repair for the munitions items listed in Table 5 in the last two (2) years (FY 02 – FY 03)?

Table 5: Munitions Maintenance Commodities

	Last 2 Yrs		**Last 2 Yrs**
1. Sea Sparrow Missile		19. Patriot	
2. AMRAAM		20. MLRS	
3. Harpoon Missile		21. 76mm Naval Gun Ammunition	
4. HARM Missile		22. 5" Navy Gun Propelling Charges	
5. Hellfire Missile		23. 5" Navy Gun Projectiles	
6. Maverick Missile		24. Naval Mines	
7. Penguin Missile		25. Air Launched Cruise Missile (ALCM)	
8. Phoenix Missile		26. Conventional Air Launched Cruise Missile (CALCM)	
9. Rolling Airframe Missile		27. Advanced Cruise Missile	

		(ACM)	
10. Sidewinder Missile		28. Air to Air Cruise Missile (ATACM)	
11. Sidearm Missile		29. Other Air-to-Ground Missiles/Components	
12. Shrike Missile		30. Other Guided Munitions	
13. Hawk Surface-to-Air Missile		31. Unguided Munitions	
14. Walleye Missile		32. Cluster Munitions	
15. SLAM-ER Missile		33. AIM-9X Missile	
16. Tomahawk Missile		34. AIM-7 Sparrow Missile	
17. Torpedoes		35. Standard Missile	
18. Other Air Intercept Missile/Components			

Rationale: This metric measures an installation's flexibility to perform maintenance on a variety of munitions.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years (FY 02 – FY 03). The facility performing the most processes will score 100%. The remaining points will be scored using Method 1.

(40%) Attribute: Capacity

(100%) Metric: Capacity for Munitions Maintenance

(100%) Question: What is your maximum munitions maintenance capacity?

Rationale: This question will use data gathered in the capacity analysis datacall question #520. The analysis will use output to identify sites suitable for relocation, reduction, or realignment of workload.

Scoring: Using the commodities identified in capacity analysis datacall question #520, the analysis will array the commodities into these categories (missiles, munitions, torpedoes/mines). Comparisons will occur among facilities within the same category (i.e. facility X, Y, and Z all producing missiles). Within categories, facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(20%) CRITERIA #2 – The availability and condition of land, facilities and associated airspace (including training areas suitable for maneuver by ground, naval or air forces throughout a diversity of climate and terrain areas and staging areas for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.

(30%) Attribute: Facility Conditions

(100%) Metric: Condition of Facilities

(100%) Question: For the type of facilities identified in Table 6, enter floor areas in thousand square feet (KSF) for buildings in condition codes green/adequate/1 (GA1), amber/substandard/2 (AS2) or red/inadequate/3 (RI3). Provide information for buildings that are vacant and occupied.

Table 6: Condition of Munitions Maintenance Facilities

FAC	Definition	#KSF in green/adequate/1	#KSF in amber/substandard/2	#KSF in red/inadequate/3
1492	Explosives holding/transfer area			
1493	Explosives railway holding yard			
1494	Explosives handling/transfer area			
1497	Explosive ordnance disposal area			
2121	Missile maintenance/assembly building			
2125	Missile maintenance/assembly building, depot			
2221	Missile production plant			
2251	Weapon production plant			
2252	Weapon production facility			
2261	Ammunition production plant			
2262	Ammunition production facility			
4211	Ammunition storage, depot and arsenal			
4221	Ammunition storage, installation			
8923	Vehicle scales			

Rationale: Responses to this question will provide a measure of the condition of the facilities that may be used in relocation.

Scoring: The scoring for each facility is the weighted area of their total mission essential buildings in all condition codes. Using the formula below, facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

x_i=1(total sq ft of GA1) + .67(total sq ft of AS2) + .33(total sq ft of RI3)

(70%) Attribute: Expansion Capability

(40%) Metric: Buildable Acreage

(100%) Question: What are the total buildable acres at your facility?

Rationale: Looking at the number of buildable acreage will allow us to assess expansion capability. Data will come from Capacity Data Call question #198 for total unconstrained acres.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(60%) Metric: Unutilized Plant Capacity (UPC)

(100%) Question: In number of square feet, what is your UPC/unassigned maintenance space?

Rationale: UPC square footage will tell us how much space is available for immediate utilization, or utilization with minimal resources.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(50%) Criteria #3 – The ability to accommodate contingency, mobilization, and future total force requirements at both the existing and potential receiving locations to support operations and training.

(40%) Attribute: Capability

(100%) Metric: Processes for Munitions Maintenance

(100%) Question: Have you inspected, tested and performed maintenance and repair for the munitions items listed in Table 5 in the last two (2) years (FY 02 – FY 03)?

Table 5: Munitions Maintenance Commodities			
	Last 2 Yrs		**Last 2 Yrs**
1. Sea Sparrow Missile		19. Patriot	
2. AMRAAM		20. MLRS	
3. Harpoon Missile		21. 76mm Naval Gun Ammunition	
4. HARM Missile		22. 5" Navy Gun Propelling Charges	
5. Hellfire Missile		23. 5" Navy Gun Projectiles	
6. Maverick Missile		24. Naval Mines	
7. Penguin Missile		25. Air Launched Cruise Missile (ALCM)	
8. Phoenix Missile		26. Conventional Air Launched Cruise Missile (CALCM)	
9. Rolling Airframe Missile		27. Advanced Cruise Missile (ACM)	
10. Sidewinder Missile		28. Air to Air Cruise Missile (ATACM)	
11. Sidearm Missile		29. Other Air-to-Ground Missiles/Components	
12. Shrike Missile		30. Other Guided Munitions	
13. Hawk Surface-to-Air Missile		31. Unguided Munitions	
14. Walleye Missile		32. Cluster Munitions	
15. SLAM-ER Missile		33. AIM-9X Missile	
16. Tomahawk Missile		34. AIM-7 Sparrow Missile	
17. Torpedoes		35. Standard Missile	
18. Other Air Intercept Missile/Components			

Rationale: This metric measures an installation's flexibility to perform maintenance on a variety of munitions.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years (FY 02 – FY 03). The facility performing the most processes will score 100%. The remaining points will be scored using Method 1.

(60%) Attribute: Capacity

(100%) Metric: Capacity for Munitions Maintenance

(100%) Question: What is your maximum munitions maintenance capacity?

Rationale: This question will use data gathered in the capacity analysis datacall question #520. This analysis will use output to identify sites suitable for relocation, reduction, or realignment of workload.

Scoring: Using the commodities identified in capacity analysis datacall question #520, the analysis will array the commodities into these categories (missiles, munitions, torpedoes/mines). Comparisons will occur among facilities within the same category (i.e. facility X, Y, and Z all producing missiles). Within categories, facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(5%) CRITERIA #4 – The cost of operations and manpower implications.

(80%) Attribute: Fixed Cost

(100%) Metric: Cost Required to Open the Doors

(100%) Question: What is the annual cost required for your munitions maintenance facility to open the doors? Use data as of 30 Sep 03 and provide the information in thousands of dollars. (Include equipment maintenance, facilities maintenance, utilities, installation management, environmental compliance, environmental conservation, fire protection, safety, law enforcement, security guards, pest control, and snow/ice removal costs only.)

Rationale: Fixed costs will vary based on the size of the installation and the number of employees. As the analysis moves into the scenario phase and MVA looks at possible installation relocation, this information becomes a source for identification of installations with highest overhead.

Scoring: The facility with the lowest cost will score 100%. The remaining points will be scored using Method 2.

(20%) Attribute: Labor

(100%) Metric: Number of Employees and Size of Payroll

1. (50%) Question: What are the number of civilian government employees supporting munitions maintenance and the size of payroll? Use data as of 30 Sep 03.

Rationale: The number of employees and size of payroll will help determine the cost of relocation and impacts to the local community.

Scoring: The facility with the lowest average salary will score 100%.
The remaining points will be scored using Method 2.

2. (50%) Question: What are the number of contractor employees supporting munitions maintenance and the size of payroll? Use data as of 30 Sep 03.

Rationale: The number of employees and size of payroll will help determine the cost of relocation and impacts to the local community.

Scoring: The facility with the lowest average salary will score 100%. The remaining points will be scored using Method 2.

FUNCTION: STORAGE AND DISTRIBUTION

(25%) CRITERIA #1 – The current and future mission capabilities and the impact on operational readiness of the Department of Defense's total force, including the impact on joint warfighting, training, and readiness.

(100%) Attribute: Capacity

(30%) Metric: Storage Capacity

(100%) Question: If you are a wholesale and force sustainment installation with explosive sited magazines used for distribution and storage in support of warfighter efforts, identify your square footage and Net Explosive Weight (NEW) of Class 1.1 explosives for the facilities identified in Table 7.

Table 7: Munitions Storage Capacity		
	Sq Ft (KSF)	**NEW (Tons)**
Explosive Earth Covered (> 20 X 40)		
Explosive Above Ground		
Other Explosive Storage		

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Rationale: Response to this question will identify the installation's ability to store munitions for current and future military operations. The greater the capacity, the more likely the installation is able to support all military operations and sustain overall readiness

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(70%) Metric: Distribution Capacity

1. (50%) Question: What is the MAXIMUM number of Twenty-foot Equivalent Unit (TEU) containers of munitions you can outload per day?

Rationale: Container outloading capacity reveals the installation's ability to retrieve large quantities of munitions from storage, containerize the loads, load rail cars and/or trucks, and move the munitions off the installation.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

2. **(15%) Question:** What is the MAXIMUM number of short tons (STONS) of munitions you can outload per day by any given method?

Rationale: This metric measures the installation's ability to move STONS from storage locations and process the STONS for movement off the installation by rail and/or truck.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(3). **(35%) Question:** Following receipt of a munitions requirement from a customer, what is the transit time to get munitions to the nearest air and seaport distribution hub via road and rail? Using Table 8, answer question in hours (to 2 decimal places).

Table 8: Munitions Distribution Time		
	Sea	Air
Rail		
Road		

Rationale: This metric measures response time to customer's request for movement of munitions. The data will show how quickly a storage facility is able to move munitions.

Scoring: Each facility will respond with answers for transit time to air and seaport. The mode of transportation to each destination is weighted and summed. The facility moving munitions within the shortest amount of time will score 100%. The remaining points will be scored using Method 2.

x_i=.99(rail time to APOE) + .01(road time to APOE) + .25(rail time to SPOE) + .75(truck time to SPOE)

(20%) CRITERIA #2 – The availability and condition of land, facilities and associated airspace (including training areas suitable for maneuver by ground, naval or air forces throughout

a diversity of climate and terrain areas and staging areas for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.

(30%) Attribute: Facility Conditions

(100%) Metric: Condition of Facilities

(100%) Question: For the type of facilities identified in Table 9, enter floor areas in thousand square feet (KSF) for buildings in condition codes green/adequate/1 (GA1), amber/substandard/2 (AS2) or red/inadequate/3 (RS3). Provide information for buildings that are vacant and occupied.

Table 9: Condition of Munitions Storage Facilities

FAC	Definition	#KSF in green/adequate/1	#KSF in amber/substandard/2	#KSF in red/inadequate/3
1492	Explosives holding/transfer area			
1493	Explosives railway holding yard			
1494	Explosives handling/transfer area			
1497	Explosive ordnance disposal area			
4211	Ammunition storage, depot and arsenal			
4221	Ammunition storage, installation			
8923	Vehicle scales			

Rationale: Responses to this question will provide a measure of the condition of the facilities that may be used in relocation.

Scoring: The scoring for each facility is the weighted area of their total mission essential buildings in all condition codes. Using the formula below, facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

x_i=1(total sq ft of GA1) + .67(total sq ft of AS2) + .33(total sq ft of RI3)

(70%) Attribute: Expansion Capability

(50%) Metric: Buildable Acreage

(100%) Question: What are the total buildable acres at your facility?

Rationale: Looking at the number of buildable acreage will allow us to assess expansion capability. Scoring will use data from question #198 of the Capacity Data Call "Total Unconstrained Acres".

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(50%) Metric: Unutilized Plant Capacity (UPC)

(100%) Question: In number of square feet, what is your UPC/unassigned munitions storage space?

Rationale: UPC square footage will tell us how much space is available for immediate utilization, or utilization with minimal resources.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(50%) CRITERIA 3: - The ability to accommodate contingency, mobilization, and future total force requirements at both the existing and potential receiving locations to support operations and training.

(100%) Attribute: Capacity

(30%) Metric: Storage Capacity

(100%) Question: If you are a wholesale and force sustainment installation with explosive sited magazines used for distribution and storage in support of warfighter efforts, identify your square footage and Net Explosive Weight (NEW) of Class 1.1 explosives for the facilities identified in Table 7.

Table 7: Munitions Storage Capacity		
	Sq Ft (KSF)	**NEW (Tons)**
Explosive Earth Covered (> 20 X 40)		
Explosive Above Ground		
Other Explosive Storage		

Rationale: Response to this question will identify the installation's ability to store munitions for current and future military operations. The greater the

capacity, the more likely the installation is able to support all military operations and sustain overall readiness.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(70%) Metric: Distribution Capacity

1. (50%) Question: What is the MAXIMUM number of Twenty-foot Equivalent Units (TEU) containers of munitions you can outload per day?

Rationale: Container outloading capacity reveals the installation's ability to retrieve large quantities of munitions from storage, containerize the loads, load rail cars and/or trucks, and move the munitions off the installation.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

2. (15%) Question: What is the MAXIMUM number of short tons (STONS) of munitions you can outload per day by any given method?

Rationale: Metrics measures the installation's ability to move STONS from storage locations and process the STONS for movement off the installation by rail and/or truck.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(3). **(35%) Question:** Following receipt of a munitions requirement from a customer, what is the transit time to get munitions to the nearest air and seaport distribution hub via road and rail? Using Table 8, answer question in hours (to 2 decimal places).

Table 8: Munitions Distribution Time		
	Sea	Air
Rail		
Road		

Rationale: This metric measures response time to customer's request for movement of munitions. The data will show how quickly a storage facility is able to move munitions.

Scoring: Each facility will respond with answers for transit time to air and seaport. The mode of transportation to each destination is weighted and summed. The facility moving munitions within the shortest amount of time will score 100%. The remaining points will be scored using Method 2.

x_i=.99(rail time to APOE) + .01(road time to APOE) + .25(rail time to SPOE) + .75(truck time to SPOE)

(5%) CRITERIA #4 – The cost of operations and manpower implications.

(80%) Attribute: Fixed Cost

(100%) Metric: Cost Required to Open the Doors

(100%) Question: What is the annual cost required for your munitions storage facilities to open the doors? Use data as of 30 Sep 03 and provide the information in thousands of dollars. (Include equipment maintenance, facilities maintenance, utilities, installation management, environmental compliance, environmental conservation, fire protection, safety, law enforcement, security guards, pest control, and snow/ice removal costs only.)

Rationale: Fixed costs will vary based on the size of the installation and the number of employees. As the analysis moves into the scenario phase and MVA looks at possible installation relocation, this information becomes a source for identification of installations with highest overhead.

Scoring: The facility with the lowest cost will score 100%. The remaining points will be scored using Method 2.

(20%) Attribute: Labor

(100%) Metric: Number of Employees and Size of Payroll

1. (50%) Question: What are the number of civilian government employees supporting munitions storage and distribution and the size of payroll? Use data as of 30 Sep 03.

Rationale: The number of employees and size of payroll will help determine the cost of relocation and impacts to the local community.

Scoring: The facility with the lowest average salary will score 100%.
The remaining points will be scored using Method 2.

2. (50%) Question: What are the number of contractor employees supporting munitions storage and distribution and the size of payroll? Use data as of 30 Sep 03.

Rationale: The number of employees and size of payroll will help determine the cost of relocation and impacts to the local community.

Scoring: The facility with the lowest average salary will score 100%. The remaining points will be scored using Method 2.

FUNCTION: DEMILITARIZATION

25%) Criteria #1 – The current and future mission capabilities and the impact on operational readiness of Department of Defenses total force, including the impact on joint warfighting, training and readiness.

100%) Attribute: Capability and Capacity

(100%) Metric: Processes for Munitions Demilitarization

(100%) Question: By method and class, identify the munitions demilitarization processes you performed within the last two (2) years (FY 02- FY 03) and provide your maximum munitions demilitarization capacity for each process and class performed? Answer this question only if you have a permit. (Use Table 10)

Table 10: Munitions Demilitarization Processes

MIDAS CLASSES	METHOD OF DEMIL									
	OBOD		Meltout		Washout		Incinerate		Reclamation	
	ea	stons	ea	stons	ea	stons	ea	stons	ea	stons
CD: Dyes										
CP: White Phosphorus										
CR: Riot Control										
CS: Smokes, HC, Colored, FS, RP										
DU: Depleted Uranium										
FI: Incendiary, Thermite										
FP: Pyrotechnics										
HA: High Explosive (HE) Components, Chrg Devices										
HB: HE Bombs										
HC: HE Cartridges										
HD:HE "D"										
HE: Bulk HE										
HG:HE Grenades										
HH: HE Depth Chrg, Under Water Munitions										
HI: HE ICM/BU and Submunitions										
HM: Missiles										
HP: He Projectiles and Warheads										
HR: He Rockets										
HT: Torpedoes										
HX: Demolition Material										
HZ: HE Land Mines										
I: Inert										
LR: Large Rocket Motor										
N: No Family										
PB: Bulk Propellant and Black Powder										

PC: Propellant Charges										
PD: Propellant Munitions and Components										
SA: Small Caliber Ammunition										
SC: Incinerable Munitions and Components										
SF: Fuzes										
TM: Tactical Missiles										

Rationale: The metric will identify the munitions demilitarization flexibility and capacity of an installation. This analysis will use output to identify sites suitable for relocation, reduction, or realignment of workload.

Scoring:
Capability: If an installation has a permit and reports capacity for performing the process within the last two years (FY 02 – FY 03), they will receive credit for that capability. Facilities receiving the most points for MIDAS Classes demiled and processes used will score 100%. The remaining points will be scored using Method 1.

Capacity: The facility will report maximum capacity in eachs or pounds. The site with the highest capacity for each method will receive 100% and the remaining points scored using Method 1.

S_i = 60% (Capability Score) + 40% (Capacity Score)

(20%) CRITERIA #2 – The availability and condition of land, facilities and associated airspace (including training areas suitable for maneuver by ground, naval or air forces throughout a diversity of climate and terrain areas and staging areas for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.

(30%) Attribute: Facility Conditions

(100%) Metric: Condition of Facility

(100%) Question: For the type of facilities identified in Table11, enter floor areas in thousand square feet (KSF) for buildings in condition codes green/adequate/1 (GA1), amber/substandard/2 (AS2) or red/inadequate/3 (RI3). Provide information for buildings that are vacant and occupied.

Table 11: Condition of Munitions Demilitarization Facilities

FAC	Definition	#KSF in green/adequate/1	#KSF in amber/substandard/2	#KSF in red/inadequate/3
1492	Explosives holding/transfer			

Table 11: Condition of Munitions Demilitarization Facilities				
FAC	**Definition**	**#KSF in green/adequate/1**	**#KSF in amber/substandard/2**	**#KSF in red/inadequate/3**
	area			
1493	Explosives railway holding yard			
1494	Explosives handling/transfer area			
1497	Explosive ordnance disposal area			
2264	Ammunition demilitarization plant			
2265	Ammunition demilitarization facility			
4211	Ammunition storage, depot and arsenal			
4221	Ammunition storage, installation			
8923	Vehicle scales			

Rationale: Responses to this question will provide a measure of the condition of the facilities that may be used in relocation.

Scoring: The scoring for each facility is the weighted area of their total mission essential buildings in all condition codes. Using the formula below, facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

$$x_i = \underline{1(\text{total sq ft of GA1}) + .67(\text{total sq ft of AS2}) + .33(\text{total sq ft of RI3})}$$

(70%) Attribute: Expansion Capability

(40%) Metric: Buildable Acreage

(100%) Question: What are the total buildable acres at your facility?

Rationale: Looking at the size of buildable acreage will allow us to assess expansion capability. Will use data collected from question #198 ("Unconstrained Total Acres") of the Capacity Data Call.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(60%) Metric: Unutilized Plant Capacity (UPC)

(100%) Question: In number of square feet, what is your UPC/unassigned munitions demilitarization space?

Rationale: UPC square footage will tell us how much space is available for immediate utilization, or utilization with minimal resources.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(50%) Criteria #3 – The ability to accommodate contingency, mobilization, and future total force requirements at both the existing and potential receiving locations to support operations and training.

(100%) Attribute: Capability and Capacity

(100%) Metric: Processes for Demilitarization

(100%) Question: By method and class, identify the munitions demilitarization processes you performed within the last two (2) years (FY 02- FY 03) and provide your maximum demilitarization for each process and class performed. Answer this question only if you have a permit. (Use Table 10)

Table 10: Munitions Demilitarization Processes

MIDAS CLASSES	METHOD OF DEMIL									
	OBOD		Meltout		Washout		Incinerate		Reclamation	
	ea	stons	ea	stons	ea	stons	ea	stons	ea	stons
CD: Dyes										
CP: White Phosphorus										
CR: Riot Control										
CS: Smokes, HC, Colored, FS, RP										
DU: Depleted Uranium										
FI: Incendiary, Thermite										
FP: Pyrotechnics										
HA: High Explosive (HE) Components, Chrg Devices										
HB: HE Bombs										
HC: HE Cartridges										
HD:HE "D"										

HE: Bulk HE										
HG:HE Grenades										
HH: HE Depth Chrg, Under Water Munitions										
HI: HE ICM/BU and Submunitions										
HM: Missiles										
HP: He Projectiles and Warheads										
HR: He Rockets										
HT: Torpedoes										
HX: Demolition Material										
HZ: HE Land Mines										
I: Inert										
LR: Large Rocket Motor										
N: No Family										
PB: Bulk Propellant and Black Powder										
PC: Propellant Charges										
PD: Propellant Munitions and Components										
SA: Small Caliber Ammunition										
SC: Incinerable Munitions and Components										
SF: Fuzes										
TM: Tactical Missiles										

Rationale: The metric will identify the demilitarization flexibility and capacity of an installation. This analysis will use output to identify sites suitable for relocation, reduction, or realignment of workload.

Scoring:
Capability: If an installation has a permit and reports capacity for performing the process within the last two years (FY 02 – FY 03), they will receive credit for that capability. Facilities receiving the most points for MIDAS Classes demiled and processes used will score 100%. The remaining points will be scored using Method 1.

Capacity: The facility will report maximum capacity in eachs or pounds. The site with the highest capacity for each method will receive 100% and the remaining points scored using Method 1.

$S_i =$ 60% (Capability Score) + 40% (Capacity Score)

(5%) CRITERIA #4 – The cost of operations and manpower implications.

(80%) Attribute: Fixed Cost

(100%) Metric: Cost Required to Open the Doors

(100%) Question: What is the annual cost required for your munitions demilitarization facility to open the doors? Use data as of 30 Sep 03 and provide the information in thousands of dollars. (Include equipment maintenance, facilities maintenance, utilities, installation management, environmental compliance, environmental conservation, fire protection, safety, law enforcement, security guards, pest control, and snow/ice removal costs only.)

Rationale: Fixed costs will vary from one place to another based on the size of the installation and the number of employees. As the analysis moves into the scenario phase and MVA looks at possible installation relocation, this information becomes a source for identification of installations with highest overhead.

Scoring: The facility with the lowest cost will score 100%. The remaining points will be scored using Method 2.

(20%) Attribute: Labor

(100%) Metric: Number of Employees and Size of Payroll

1. (50%) Question: What are the number of civilian government employees supporting munitions demilitarization and the size of payroll? Use data as of 30 Sep 03.

Rationale: The number of employees and size of payroll will help determine the cost of relocation and impacts to the local community.

Scoring: The facility with the lowest average salary will score 100%.
The remaining points will be scored using Method 2.

2. (50%) Question: What are the number of contractor employees supporting munitions demilitarization and the size of payroll? Use data as of 30 Sep 03.

Rationale: The number of employees and size of payroll will help determine the cost of relocation and impacts to the local community.

Scoring: The facility with the lowest average salary will score 100%.
The remaining points will be scored using Method 2.

<u>FUNCTION: ARMAMENTS MANUFACTURING/PRODUCTION</u>
(45%) Criteria #1 – The current and future mission capabilities and the impact on operational readiness of Department of Defense's total force, including the impact on joint warfighting, training and readiness.

(60%) Attribute: Capability

(100%) Metric: Processes for Armaments Manufacturing/Production

(100%) Question: What armaments manufacturing/production processes did you perform in the last two (2) years (FY 02 – FY 03)? (Table 12)

Table 12: Armaments Manufacturing/Production Processes	**Last 2 Yrs**
1. All-angle simulation of vehicle mounted recoils/mounts	
2. Automated guided deep-hole boring (30' length min.)	
3. Chrome plating, internal (30' length min.)	
4. Computer Numerical Controlled (CNC) powder chamber grinding (30' length min.)	
5. Continuous heat-treat of large cylinders (30' length min.)	
6. Swage and autofrettage of large cylinders	
7. 7-axis machining	
8. Rotary forge of large cylinders (30' length min.)	
9. Computer assisted bore inspection and laser dimensional control	
10. Foundry (armor steel, ferrous, and non ferrous)	
11. Large structures/vehicles machining (x-y axis travel 10 ft per min)	
12. Simulation proof testing and gymnastication (cannon breech and mortar barrel assemblies	
13. Simulation proof testing and gymnastication (gun mounts and recoils up to 155mm	

Rationale: Responses to this question will identify critical armaments manufacturing/production processes and highlight sources of duplication, multi-functional capability, and the availability or absence of a skilled work force. Table 12 provides the information needed to respond to the armaments processes.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years. Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(40%) Attribute: Capacity

(100%) Metric: Capacity for Armaments Manufacturing/Production

(100%) Question: Which armaments products did you produce in the last two (2) years (FY 02 – FY 03)? Use "Other" (element number 11 in the table) if you produce a product that is not readily available in the commercial sector and not listed in the table. List only one. (Use table 13.)

Table 13: Armaments Manufacturing/Production Capacity	Last 2 Yrs
1. Artillery and tank cannon	
2. Artillery, towed and self-propelled repair/spare parts (carriage)	
3. Gun mounts (medium and large caliber)	
4. Mortars	
5. Recoil mechanisms	
6. Small arms gages	
7. Armored combat vehicles	
8. Aircraft Armament systems	
9. Gun Systems and related components	
10. Other Guided/Unguided Missile Armament Components	
11. Other	

Rationale: This metric identifies armaments processes that are not available in the private sector.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years. Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(15%) CRITERIA #2 – The availability and condition of land, facilities and associated airspace (including training areas suitable for maneuver by ground, naval or air forces throughout a diversity of climate and terrain areas and staging areas for use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.

(30%) Attribute: Facility Conditions

(100%) Metric: Condition of Facilities

(100%) Question: For the type of facilities identified in Table 14, enter floor areas in thousand square feet (KSF) for buildings in condition codes green/adequate/1 (GA1), amber/substandard/2 (AS2) or red/inadequate/3 (RI3). Provide information for buildings that are vacant and occupied.

Table 14: Condition of Armaments Manufacturing/Production Facilities				
FAC	**Definition**	**#KSF in green/adequate/1**	**#KSF in amber/substandard/2**	**#KSF in red/inadequate/3**
2146	Launch vehicle test facility			
2151	Weapon maintenance facility			
2152	Weapon maintenance			

Table 14: Condition of Armaments Manufacturing/Production Facilities				
FAC	**Definition**	**#KSF in green/adequate/1**	**#KSF in amber/substandard/2**	**#KSF in red/inadequate/3**
	shop, depot			
2154	Weapon maintenance facility, depot			
2241	Tank production plant			
2242	Tank/automotive production facility			
2251	Weapon production plant			
2252	Weapon production facility			
3904	Propulsion engine test cell			

Rationale: Responses to this question will provide a measure of the condition of the facilities that may be used in relocation.

Scoring: The scoring for each facility is the weighted area of their total mission essential buildings in all condition codes. Using the formula below, facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

x_i=1(total sq ft of GA1) + .67(total sq ft of AS2) + .33(total sq ft of RI3)

(70%) Attribute: Expansion Capability

(40%) Metric: Buildable Acreage

(100%) Question: What are the total buildable acres at your facility?

Rationale: Looking at the number of buildable acreage will allow us to assess expansion capability. The scoring willl use data from question #198 "Unconstrained Total Acres" of the Capacity Data Call.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(60%) Metric: Unutilized Plant Capacity (UPC)

(100%) Question: In number of square feet, what is your UPC/unassigned armaments manufacturing/production space?

Rationale: UPC square footage will tell us how much space is available for immediate utilization, or utilization with minimal resources.

Scoring: Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(35%) Criteria #3 – The ability to accommodate contingency, mobilization, and future total force requirements at both the existing and potential receiving locations to support operations and training.

(40%) Attribute: Capability

(100%) Metric: Processes for Armaments Manufacturing/Production

(100%) Question: Which armaments manufacturing/production processes did you perform in the last two (2) years (FY 02 – FY 03)? (Use Table 12)

Table 12: Armaments Manufacturing/Production Processes	**Last 2 Yrs**
1. All-angle simulation of vehicle mounted recoils/mounts	
2. Automated guided deep-hole boring (30' length min.)	
3. Chrome plating, internal (30' length min.)	
4. Computer Numerical Controlled (CNC) powder chamber grinding (30' length min.)	
5. Continuous heat-treat of large cylinders (30' length min.)	
6. Swage and autofrettage of large cylinders	
7. 7-axis machining	
8. Rotary forge of large cylinders (30' length min.)	
9. Computer assisted bore inspection and laser dimensional control	
10. Foundry (armor steel, ferrous, and non ferrous)	
11. Large structures/vehicles machining (x-y axis travel 10 ft per min)	
12. Simulation proof testing and gymnastication (cannon breech and mortar barrel assemblies	
13. Simulation proof testing and gymnastication (gun mounts and recoils up to 155mm	

Rationale: Responses to this question will identify critical armaments manufacturing/production processes and highlight sources of duplication, multi-functional capability, and the availability or absence of a skilled work force. Table 12 provides the information needed to respond to the armaments processes.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years. Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(60%) Attribute: Capacity

(100%) Metric: Capacity for Armaments Manufacturing/Production

(100%) Question: Which armaments products did you produce in the last two (2) years (FY 02 – FY 03)? Use "Other" (element number 11 in the table) if you produce a product that is not readily available in the commercial sector and not listed in the table. List only one. (Use Table 13)

Table 13: Armaments Manufacturing/Production Capacity	**Last 2 Yrs**
1. Artillery and tank cannon	
2. Artillery, towed and self-propelled repair/spare parts (carriage)	
3. Gun mounts for artillery (medium and large caliber)	
4. Mortars	
5. Recoil mechanisms	
6. Small arms gages	
7. Armored combat vehicles	
8. Aircraft Armament systems	
9. Gun Systems and related components	
10. Other Guided/Unguided Missile Armament Components	
11. Other	

Rationale: This metric identifies armaments processes that are not available in the private sector.

Scoring: The facility receives credit when they check the box indicating that they performed the process within the last two years. Facilities receiving the most points will score 100%. The remaining points will be scored using Method 1.

(5%) CRITERIA #4 - Cost of Operations and Manpower Implications

(80%) Attribute: Fixed Cost

(100%) Metric: Cost Required to Open the Doors

(100%) Question: What is the annual cost required for your armaments manufacturing facility to open the doors? Use data as of 30 Sep 03 and provide the information in thousands of dollars. (Include equipment maintenance, facilities maintenance, utilities, installation management, environmental

compliance, environmental conservation, fire protection, safety, law enforcement, security guards, pest control, and snow/ice removal costs only.)

Rationale: Fixed costs will vary from one place to another based on the size of the installation and the number of employees. As the analysis moves into the scenario phase and MVA looks at possible installation relocation, this information becomes a source for identification of installations with highest overhead.

Scoring: The facility with the lowest cost will score 100%. The remaining points will be scored using Method 2.

(20%) Attribute: Labor

(100%) Metric: Number of Employees and Size of Payroll

1. (50%) Question: What are the number of civilian government employees supporting armaments production and the size of payroll? Use data as of 30 Sep 03.

Rationale: The number of employees and size of payroll will help determine the cost of relocation and impacts to the local community.

Scoring: The facility with the lowest average salary will score 100%.
The remaining points will be scored using Method 2.

2. (50%) Question: What are the number of contractor employees supporting armaments production and the size of payroll? Use data as of 30 Sep 03.

Rationale: The number of employees and size of payroll will help determine the cost of relocation and impacts to the local community.

Scoring: The facility with the lowest average salary will score 100%.
The remaining points will be scored using Method 2.

SUMMARY: The DoD goal for BRAC 2005 is to "reconfigure the current infrastructure into one with operational capacity that maximizes both war fighting capability and efficiency" (Donald Rumsfeld, 15 Nov 2002). A major facet of completing this analysis is to use the established selection criteria (Criteria 1 – 4 (Military Value), Criteria 5 (return on investment), and Criteria 6 – 8 (Impacts) to evaluate each installation. The application of the first four criteria is a major portion of the decision making process, and is given primary consideration. This MVA analysis assesses the military value of the government-owned industrial base and identifies the processes that will allow the IJCSG to assess capacity, capability, skills of the workforce, and the condition of the infrastructure for munitions' and armaments' key functions of munitions

production, munitions maintenance, munitions storage and distribution, munitions demilitarization, and armaments production. The approach to the analysis established a scoring plan that includes weights for the four military value criteria, the attributes, metrics and questions and local weights for each question. Once the IJCSG completes data collection, the results (based on today's information), will establish a military value baseline for each installation and will remain constant. The focus of this analysis is to preserve the appropriate mix of installations that will provide the capacity and capability needed to support the strategic focus of DoD. The outcome will identify munitions and armaments locations with critical processes, skilled workforces, flexibility, sources for relocation of workload, and opportunities for JOINT transformation. The data gathered will allow the IJCSG to rank installations based on military value and focus the IJCSG in the right direction for the scenario phase (sites we need to retain or close). Munitions IS a JOINT endeavor and the synergy of the JOINT IJCSG during the scenario phase will allow reductions, realignment and relocation to occur while maintaining support to the warfighters in both peacetime and surging for war.

MAINTENANCE

DoD needs to maintain an organic capability to accomplish adequate depot and combat field support maintenance in order to provide operational and combat ready weapon systems and technologies required by the Joint Chiefs of Staff contingency scenarios. This organic maintenance capability must be sized to ensure support for the projected requirement increases associated with involvement in major contingencies (surge capability) and to provide maintenance capabilities where organic resources have been identified as the last source of repair. Therefore, it is essential for DoD to maintain an organic core logistics capability. This organic core capability must provide the organic depot infrastructure with technology, facilities, equipment, and a highly qualified workforce to support future unforeseen requirements.

Both the depot and combat field support/intermediate maintenance functions must provide maintenance support across a diverse and wide array of weapon systems within DoD. We considered various scoring approaches and the Maintenance Subgroup will assess military value for both depot maintenance and combat field support/intermediate maintenance functions at the commodity group level. The maintenance commodity group level approach to military value ensures that all of the maintenance work performed at both depot and combat field support/intermediate maintenance activities is considered. Each commodity group is the same as defined in the Industrial JCSG BRAC Capacity Analysis Report.

Assessing military value at the commodity level will allow evaluations of common capabilities across all of the Services. For example, locations that provide combat vehicle maintenance and fighter aircraft maintenance will be evaluated as separate groups. All weapon systems/equipment are integral to the joint warfighting effort. Therefore, comparing military value between different commodities is not relevant. For example, military value for combat vehicle maintenance cannot be determined as being more or less important than military value for fighter aircraft maintenance. Determining military value at the commodity level maximizes jointness and enhances efficiencies and effectiveness. The installation/activity roll up or consolidation to determine military value keeps the efforts of BRAC at the service level and detracts from the goal of increasing jointness.

Combat field support/intermediate maintenance capabilities are integrally linked to the location of the operational forces. Military value for intermediate maintenance cannot be fully determined without understanding the services' operational basing locations.
For depot maintenance and combat field support/intermediate maintenance, the Maintenance Subgroup used the DoD military value approach that requires the four selection criteria be weighted to total 100 points. Selection criteria have appropriate attributes developed and these attributes, within each selection criteria, have been weighted for a total of 100 points. Each of these attributes has appropriate metrics developed and the metrics, within each attribute, are weighted for a total of 100 points. The last step in the approach was to develop questions for each of the metrics. These questions, within each metric, were weighted for a total of 100 points.

The Maintenance Subgroup followed this weighting approach, for depot maintenance and combat field support/intermediate maintenance, to weight each selection criteria, attribute, metric, and question. Below are the factors and rationale used to develop and determine the attributes, metrics, questions, and the relative weighting.

- Relative importance with respect to the other elements being considered.
- Ability to collect the data.
- Is the data objective?
- Is the data measurable and will it be a direct measurement or be a surrogate measurement?
- Is the data auditable?
- Is the data reliable?
- Is the data consistent across all Services?
- Is the question a discriminator?
- Professional knowledge and judgment.

Military Value Determination Approach

The Maintenance Subgroup used the following approach to measure military value at the commodity group level:

- Developed attributes for each DoD BRAC criteria
- Developed metrics to measure each attribute
- Developed questions for each metric
- Determined weighting and scoring plan
- Performed a review and a validation of approach
    - Conducted joint service General Officer/SES level "Red Team" review of the attributes, metrics, and questions
    - Performed a "Beta" test of the scoring and weighting approach after the "Red Team" analysis
    - Reviewed all comments and made adjustments

Scoring Mathematics:

The majority of the questions are normalized using either the maximum or minimum score across a commodity group. The following is how this scoring will be determined:

- *Highest Number is Desired*. For questions stating, "The highest number for each commodity group receives maximum points. The remaining numbers will be scored by linear normalization to the highest number.", we will use the following calculation.

  The score (S_i) for commodity group *i* for the question is $S_i = \frac{x_i}{x_{\max}}$, where x_i = the number for a commodity group *i* and $x_{\max}$ is the maximum score among all same commodity groups reporting. This approach will be adjusted accordingly if averages of the numbers are used to determine the score.

- *Lowest Number is Desired.* For questions stating, "The lowest number for each commodity group receives maximum points. The remaining numbers will be scored by normalization to the lowest number.", we will use the following calculation.

  The score (S_i) for commodity group *i* for the question is $S_i = \frac{x_{\min}}{x_i}$, where x_i is the scored item for site *i* and $x_{\min}$ is the minimum score among all commodity groups

reporting. This approach will be adjusted accordingly if averages of the numbers are used to determine the score.

- *Other Scoring*. Any other scoring approaches used are explained after each question.

FUNCTION: Depot Maintenance

(39%) CRITERIA #1 – The current and future mission requirements and impact on operational readiness of the Department of Defense's total force, including impacts on joint warfighting, training and readiness.

(46%) Attribute: Maintenance Capability

(60%) Metric: Workforce and Skills

1. (35%) Question: For FY 03 and FY04, for each commodity group performed, identify the Direct Labor Hours (DLHs) your depot maintenance activity produces.

Rationale: Determines the average DLHs for the commodity group. This measures the depth of the workforce. Because of the differences between the Services, DLHs is the best indicator of relative size.

Scoring: The highest average, for each commodity group, receives maximum points. The remaining averages will be scored by linear normalization to the highest average.

2. (65%) Question: For each commodity group performed, identify and list all of the different direct labor occupational series and number of personnel for each occupational series at your activity for FY03 and FY04. Do not include the different grades within an occupational series.

Rationale: Determines the average number of occupational skills for the commodity group. Identifies the diversity, flexibility and breadth of the workforce.

Scoring: The highest average number of occupation series, for each commodity group, receives maximum points. The remaining numbers will be scored by linear normalization to the highest number.

(25%) Metric: Equipment

1. (100%) Question: For your activity, what is the replacement value for the capital purchases program and what is the capital purchases program investment,

in dollars for FY01 through FY04? Identify other contributed capital assets, in dollars for FY01 through FY04.

Rationale: Shows level of investment in capital equipment.

Scoring: Divide the 4-year investment average by the 4-year equipment replacement value average to get a percentage. The highest percentage receives maximum points. The remaining percentages will be scored by linear normalization to the highest percentage. Points will be applied to all commodity groups produced at that activity.

(15%) Metric: Last Source/Directed Workload

1. (100%) Question: For each commodity group performed, what is the total number of DLHs produced that are identified as Last Source or Directed workload for FY03 and FY04?

Rationale: Identifies the workload that must be performed organically and is difficult and/or more costly to reestablish this capability elsewhere.

Scoring: Determine the average of each category and sum them.

(50%) An activity accomplishing any Last Source or Directed workload will receive maximum points.

(50%) The highest sum will receive maximum points. The remaining sums will be scored by linear normalization to the highest sum.

(31%) Attribute: Interservice and Commercial Partnerships

(67%) Metric: Interservice Workload

1. (100%) Question: For each commodity group performed, identify the total number of DLHs performed for FY03 and FY04 and the total number of Interservice DLHs performed and for what Service (Army, Navy, Air Force, Marine Corps).

Rationale: Shows the ability of a depot to support more that one Service's work, enhancing joint operational readiness.

Scoring: Determine the average for all of the years.

Determine the percentage:
Each Service's Installation Interservice Commodity DLHs divided by Service's Installation Total DLHs for that particular commodity = Interservice DLHs as % of Commodity DLHs

For a Single Service Interservice DLHs ≥ 5% of Individual Commodity DLHs = 1/3 points
For Two Services Interservice DLHs ≥ 10% of Individual Commodity DLHs = 2/3 points
For Three Services Interservice DLHs ≥ 15% of Individual Commodity DLHs = Maximum points

(33%) Metric: Commercial Partnerships

1. (100%) Question: For each commodity group performed, does your depot maintenance activity have public-private partnership(s) that provide organic or commercial direct labor hours? The source is the most current OSD report on Public-Private Partnerships for Depot-Level Maintenance.

Rationale: Shows ability of a depot maintenance activity to capitalize on a commercial sector's capabilities and resources, enhancing joint operational readiness.

Scoring: Yes or No answer. Yes answer receives all the points.

(20%) Attribute: Proximity Considerations

3. (100%) Metric: Integrated Activities

1. (63%) Question: For each commodity group performed, list the operational units (Minimum - Squadron/Battalion) or Distribution Centers located on your installation that receive or provide support.

Rationale: Shows ability of a depot maintenance activity to provide immediate/flexible support to customers, enhancing operational readiness.

Scoring: The highest number of operational units/Distribution Centers for each commodity will receive maximum points. The remaining numbers will be scored by linear normalization to the highest number.

2. (37%) Question: For each commodity group performed, is there a co-located intermediate level maintenance activity with the depot activity that can receive or provide support for that commodity?

Rationale: Shows ability of a depot maintenance activity to provide immediate/flexible support to customers, enhancing operational readiness.

Scoring: Yes or No answer. Yes answer receives all the points.

(3%) Attribute: Quality

(100%) Metric: Quality of Work Performed

1. (100%) Question: For each commodity group performed, how many defects were reported and what are the direct labor hours (defects/Total Hours) for FY01 through FY03?

Rationale: A lower number of defects indicate that a higher quality product is being produced/delivered to the operating forces.

Scoring: Take the sum of all the defects divided by the sum of all of the hours for each commodity group. The lowest average receives maximum points. The remaining averages will be scored by normalization to the lowest average.

(30%) CRITERIA #2 – The availability and condition of land, facilities and associated airspace (including training areas suitable for maneuver by ground, naval, or air forces throughout a diversity of climate and terrain, and staging areas for use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.

(10%) Attribute: Expansion Potential

(100%) Metric: Buildable Acres

1. (33%) Question: On your installation, are there buildable acres appropriately zoned for maintenance, as of the FY04 Appropriation Act?

Rationale: Establishes the expansion potential by commodity group.

Scoring: Yes or No answer for having buildable acres. Yes answer receives all the points. All commodity groups performed will receive this score.

2. (67%) Question: For each commodity group performed, how many acres are unrestricted and appropriately zoned for maintenance use as of the FY04 Appropriation Act?

Rationale: Establishes unrestricted expansion potential by commodity group. The size of unrestricted buildable acres is important as it shows an installation's potential to be a receiving location.

Scoring: The highest number of acres, for each commodity group, receives maximum points. The remaining numbers will be scored by linear normalization to the highest number.

(60%) Attribute: Facilities

(100%) Metric: Size, Type and Condition of Buildings

1. (100%) Question: For each commodity group performed, based on the FY04 Appropriation Act, identify the FY04 space (in thousand of Square Feet - KSF) by building type and condition code (C-1 through C-4) for all maintenance facility activity codes (FAC) and service category code numbers (CCN). Note: Include only funded and approved MILCONs up to and including the FY04 Appropriation Act that will be completed and available in FY04.

Rationale: Building condition and size, by type, are important in evaluating military value because they are the only fixed assets that affect the ability to perform the depot maintenance mission. The question identifies the size and condition of the buildings being used for each commodity group for FY04.

Scoring: **(77%)** The percent of the total weighted size (by condition) divided by total size. (Weighted size condition codes: C-1 = 100% of SF, C-2 = 90% of SF, C-3 = 70% of SF, C-4 = 50% of SF). The highest percentage, for each commodity group, receives maximum points. The remaining percentages will be scored by linear normalization to the highest percentage.

(23%) Highest weighted size. The highest number of condition-weighted square footage, for each commodity group, receives maximum points. The remaining numbers will be scored by linear normalization to the highest number.

(30%) Attribute: Maintenance Operation/Environmental Restrictions

(50%) Metric: Operational Restrictions

1. (33%) Question: For each commodity group performed, is maintenance or operational testing constrained by electromagnetic radiation and/or emissions, or are waivers required, as of end of 1st quarter FY04? Indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

Rationale: Waivers and restrictions to maintenance or operational testing impede performance.

Scoring: Yes or No answer. No answer receives all the points. Permanent waivers will not be considered restrictions.

2. (33%) Question: For each commodity group performed, do noise restrictions or noise abatement procedures, or are waivers required, as of end of 1st quarter FY04, constrain maintenance or operational testing? Indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

Rationale: Waivers and restrictions to maintenance or operational testing impede performance.

Scoring: Yes or No answer. No answer receives all the points. Permanent waivers will not be considered restrictions.

3. (34%) Question: For each commodity group performed, are there restrictions, other than electromagnetic radiation and/or emissions, noise restrictions/abatement procedures, or are waivers required, as of end of 1st quarter FY04, that restrict/constrain maintenance or operational testing? If there are other restrictions/constraints, indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

Rationale: Waivers and restrictions to maintenance or operational testing impede performance.

Scoring: Yes or No answer. No answer receives all the points. Permanent waivers will not be considered restrictions.

(50%) Metric: Environmental Capacity

1. (50%) Question: For each commodity group performed, during the performance of maintenance or operational testing, which commodity groups produce air emissions. (Note: emissions are identified in the table of DoD question #211). Answer Yes/No. List and describe any waivers due to expire between FY04 and FY09.

Rationale: Headroom can be determined from capacity DoD question #211. More emissions headroom is desired and shows capacity to expand.

Scoring: There are 8 emissions, each worth 1/8 of the total points. If the answer is yes and headroom is available, the commodity gets maximum points. If the answer is yes and there is no headroom, the commodity gets no points. If the answer is no, the commodity gets maximum points. DoD question #211 determines headroom.

2. (50%) Question: For each commodity group performed, during the performance of maintenance or operational testing, which commodity groups produce industrial wastewater? Answer Yes/No. List and describe any waivers due to expire between FY04 and FY09.

Rationale: Headroom can be determined from DoD question #282. Headroom is the difference between permitted daily capacity and peak outflow. More wastewater headroom is desired and shows capacity to expand.

Scoring: If the answer is yes and headroom is available, the commodity gets maximum points. If the answer is yes and there is no headroom, the commodity gets no points. If the answer is no, the commodity gets maximum points. DoD question #282 determines headroom

(21%) CRITERIA #3 – The ability to accommodate contingency, mobilization, and future total force requirements at both the existing and potential of receiving locations to support operations and training.

(33%) Attribute: Maintenance Capability

(100%) Metric: Workforce and Skills

1. (40%) Question: For each commodity group performed, list all of the different direct labor occupational series at your activity for FY04. Do not include the different grades within an occupational series.

Rationale: Determines the number of occupational skills for the commodity group. Identifies the diversity, flexibility and breadth of the workforce.

Scoring: The highest number of occupation series, for each commodity group, receives maximum points. The remaining numbers will be scored by linear normalization to the highest number.

2. (30%) Question: Identify, by name, any accredited trade schools/colleges/ universities, within 50 miles distance from your activity, which provide training or trained personnel to support future maintenance workforce requirements; note any formal agreements**.**

Rationale: Size of adult secondary educational base provides potential opportunities to support sustainment of the technical workforce.

Scoring: The scoring will be broken into two parts, the highest sum in each section receives maximum points. The remaining sums will be scored by linear normalization to the highest sum. The two scores for each activity will be added and the resultant score will be applied to all commodity groups being performed at that activity.

(**50%)** Half of the points will be based on the total sum of the number of accredited trade schools/colleges/universities.

(50%) Half of the points will be based on the number of accredited trade schools/colleges/universities that have formal agreements.

3. (30%) Question: For each maintenance activity, what is the name of and distance to the nearest Metropolitan Statistical Area (MSA), and what is the total employment listed within the MSA for the following two Major Standard Occupational Classification (SOC) Groups: 49-0000 Installation, Maintenance, and Repair Occupations and selected 51-0000 Production Occupations?

Rationale: Identifies proximity and size of employment base needed to support surge and reconstitution efforts. A closer and larger skill base is desired.

Scoring: The highest score will receive maximum points. The remaining numbers will be scored by linear normalization to the highest number. The score will be applied to all commodity groups being performed at that activity. The following scoring method will be used:

Score = Max Weight * [Distance Score] * [“Relative” Size Skill Base Score]

Where: “Max Weight” is the maximum points assigned to this question.

“Distance Score” is between 0 to 1 measured in the following chart:

Distance Score	**Distance to MSA**
1	Less than or equal to 50 Miles
.5	Between 51 to 75 Miles
.25	Between 76 to 100 Miles
0	Greater than 100 Miles

"Relative" Size Skill Base Score is 0 to 1 measured in the following chart using the listed ratio.

Relative Skill Base Score	Size of the Market (49-0000 + 51-0000) ---------- Size of the Workforce
1	If Ratio is greater than 10
.75	If Ratio is between 7.5 to 10
.5	If Ratio is between 2.5 to 7.5
.25	If Ratio is between 1.0 to 2.5
0	If Ratio is less than 1

(48%) Attribute: Surge/Reconstitution

(60%) Metric: Maximum Capacity

1. (67%) Question: For each commodity group performed, what is the Maximum Capacity and the Total Capacity for each of the years FY03, FY04, FY05, and FY09?

Rationale: The higher Maximum Capacity Index, expressed as a percentage, is desired. The higher the percentage of change indicates more flexibility to accommodate contingency, mobilization, and future Total Force requirements. This measurement also shows the potential to receive additional maintenance operations for this commodity group. Using a percentage to measure an activity's potential maximum capacity change is not biased to the activity size.

Scoring: Data is available from DoD #503 and #501. Determine the average index for the identified fiscal years by taking the sum of Maximum Capacity for FY03, FY04, FY05, and FY09 and divide by the sum of the Total Capacity for FY03, FY04, FY05, and FY09. The highest percentage will receive maximum points. The remaining percentages will be scored by linear normalization to the highest percentage.

2. (33%) Question: For each commodity group performed, what is the Maximum Capacity for the years FY03, FY04, FY05, and FY09? Data is available from DoD #503.

Rationale: Higher Maximum Capacity indicates more flexibility to accommodate contingency, mobilization, and future Total Force requirements. This measurement also shows the potential to receive additional maintenance operations for this commodity group. It approximates the ability to meet unknown requirements above current surge.

Scoring: The highest sum will receive maximum points. The remaining sums will be scored by linear normalization to the highest number.

(40%) Metric: Available Capacity

1. (75%) Question: For each commodity group performed, what is the Total Capacity and the Required Capacity for each of the years FY03, FY04, FY05, and FY09?

Rationale: Higher Available Capacity is desired. Higher Available Capacity indicates more flexibility to accommodate contingency, mobilization, and future Total Force requirements. This measurement also shows the potential to receive additional maintenance operations for this commodity group. Available Capacity is capacity that already exists.

Scoring: Data is available from DoD #501 and #502. Determine the Available Capacity Index percentage by taking the sum of Available Capacity for FY03, FY04, FY05, and FY09 divided by the sum of the Total Capacity for FY03, FY04, FY05, and FY09. Available Capacity = Total Capacity - Required Capacity. The highest percentage will receive maximum points. The remaining percentages will be scored by linear normalization to the highest percentage.

2. (25%) Question: For each commodity group performed, what is the Available Capacity for the years FY03, FY04, FY05, and FY09? The higher Available Capacity is desired.

Rationale: Higher Available Capacity indicates more flexibility to accommodate contingency, mobilization, and future Total Force requirements. This measurement also shows the potential to receive additional maintenance operations for this commodity group. Available Capacity is capacity that already exists.

Scoring: Data is available from DoD #501 and #502. Available Capacity = Total Capacity - Required Capacity. Determine the sum of Available Capacity for FY03, FY04, FY05, and FY09. The highest score will receive maximum points. The remaining numbers will be scored by linear normalization to the highest number.

(19%) Attribute: Facilities and Transportation Infrastructure

(75%) Metric: Available Building Space

1. (100%) Question: For each commodity group performed, based on the FY04 Appropriation Act, identify the FY09 space (in thousand of Square Feet - KSF) by building type and condition code (C-1 through C-4) all maintenance facility activity codes (FAC) and service category code numbers (CCN). Report FY09 condition codes the same as the FY04 assessments, except for condition codes

that will change due to funded and approved MILCONs projects up to and including the FY04 Appropriation Act that will be completed and available for use by FY09. Include the total number of square feet of building space by commodity that is to be made available within your maintenance activity.

Rationale: Using the Total Weighted Size provides an indication of overall condition relative to size. Taking the difference will account for any additional space made available for reconfiguration due to changes in workload mix, retirement of a weapons system, or completion of a MILCON project within your maintenance activity. The greater difference between FY09 and FY04 Total Weighted Size indicates more total potential capacity to accommodate contingency, mobilization, and future Total Force requirements, and the potential to receive additional maintenance operations.

Scoring: Determine the Total Weighted Size of the FY09 space in all conditions (Total Weighted Size is calculated using the total square feet by condition code multiplied by the following weights: C-1 = 100% of SF, C-2 = 90% of SF, C-3 = 70% of SF, C-4 = 50% of SF. The weighted square feet of each condition is totaled together.). Determine the Weight difference between the FY09 Total Weighted Size and the FY04 Total Weighted Size (determined in Criteria 2, Attribute; Facilities). The highest number will receive maximum points. The remaining numbers will be scored by linear normalization to the highest number.

(25%) Metric: Transportation Modes

1. (100%) Question: List your installation's access to strategic transportation modes (e.g., RAIL- rail spur on installation, HIGHWAY- State or Federal interstate highways adjacent to installation, AIR- airports on installation, WATER - water terminal on installation). List the type of transportation modes found.

Rationale: Access to strategic transportation modes offers increased flexibility to support contingencies, mobilization and requirements of the Future Total Force, and the potential to receive additional maintenance operations.

Scoring: Yes or No question for each access point. The Yes answers will be added and the highest sum will receive maximum points. The remaining sums will be scored by linear normalization to the highest sum. The score will be applied to all commodity groups being performed at that activity.

(10%) CRITERIA #4. The cost of operations and the manpower implications.

(45%) Attribute: Direct Labor Costs

(100%) Metric: Direct Labor Costs per Production Hour

1. (100%) Question: For each commodity group performed, what is your organization's cost per produced hour (Total Direct Labor Costs/Total Hours Produced) for FY01 through FY03.

Rationale: An economic indicator of the value received from your direct labor workforce. [Reference DoD Cost Comparability Handbook, Chapter 6].

Scoring: The lowest average number will receive maximum points. The remaining numbers will be scored by normalization to the lowest average number.

(45%) Attribute: Other Costs

(100%) Metric: All Other Costs for Production Hour

1. (100%) Question: For each commodity group performed, what are your organization's other production costs (All other cost (minus direct and indirect materiel) /Total Hours) for FY01 through FY03.

(NOTE: Total Other Production Costs are defined as the recurring customer costs consisting of Production Expense (Indirect) PLUS General & Administration (G&A); reference the Defense Depot Maintenance Cost Comparability Handbook dtd January 1998 pages 14 and 16).

Rationale: An economic indicator of the value received from other costs. [Reference DoD Cost Comparability Handbook, Chapter 6].

Scoring: Determine the average production costs. The lowest average number will receive maximum points. The remaining numbers will be scored by normalization to the lowest average number.

(10%) Attribute: Workforce and Skills

(100%) Metric: Stability

1. (100%) Question: What is your direct labor attrition rate for FY00 through FY03?

Rationale: A lower attrition rate demonstrates more stability in the workforce.

Scoring: Determine the average attrition rate using FY00 through FY03. The lowest average will receive maximum points. The remaining averages will be scored by normalization to the lowest average. The score will be applied to all commodity groups being performed at that activity.

FUNCTION: Combat Field Support/Intermediate Maintenance

(50%) CRITERIA #1 – The current and future mission requirements and impact on operational readiness of the Department of Defense's total force, including impacts on joint warfighting, training and readiness.

(30%) Attribute: Maintenance Capability

(100%) Metric: Workforce and Skills

1. (50%) Question: For each commodity group performed, list the total number of assigned personnel onboard and the total number of Direct Labor Hours (DLHs) for FY01-FY03.

Rationale: Provides a measure of output by commodity. By commodity group, take the average total production hours for FY01-FY03 divided by the average total number of assigned personnel onboard for FY01through FY03 to determine the number of hours per person.

Scoring: Determine the number of DLHs per assigned personnel onboard. The highest number for each commodity receives maximum points. The remaining numbers will be scored by a linear normalization to the highest number.

2. (50%) Question: For each commodity group performed, what is the total number of DLHs produced for each year FY01 through FY03?

Rationale: Used to determine the depth of the workforce. Because of the differences between the Services, DLHs is the best indicator of relative size.

Scoring Plan: The highest sum for each commodity group receives maximum points. The remaining sums will be scored by a linear normalization to the highest sum.

(5%) Attribute: Interservice

(100%) Metric: Interservice

1. (100%) Question: For each commodity group performed, identify the total number of DLHs performed for FY01 through FY03 and the total number of Interservice DLHs performed and for what Service.

Rationale: Shows activity's ability to support more than one Service's work, enhancing joint operational readiness.

Scoring:

(67%) Determine the percentage:
Each Service's Installation Interservice Commodity DLHs divided by Total Service's Installation DLHs for that particular commodity = Interservice DLHs as % of Commodity DLHs

For a Single Service Interservice DLHs $\geq$ 2% of Individual Commodity DLHs = 1/3 points
For Two Services Interservice DLHs $\geq$ 4% of Individual Commodity DLHs = 2/3 points
For Three Services Interservice DLHs $\geq$ 6% of Individual Commodity DLHs = Maximum points

(33%) The highest average total hours will receive maximum points. The remaining averages will be scored by linear normalization to the highest average.

(65%) Attribute: Proximity Considerations

(85%) Metric: Proximity with DoD Customers

1. (100%) Question: For each commodity group performed, list the DoD customers (Minimum size- Squadron/Battalion) that are located on or within 50 miles of your activity and the number of DLHs for each customer for FY01 through FY03.

Rationale: To identify the proximity of DoD customers to the intermediate level maintenance activity. The closer the maintenance activity is to the user provides better support to enhance readiness/mission effectiveness.

Scoring: (50%) Determine the total number of DoD customers for each commodity group that are located on or within 50 miles of your activity. The highest sum receives maximum points. The remaining sums will be scored by a linear normalization to the highest sum.

(50%) Determine the total hours performed for the DoD Customers for each commodity group. The highest sum for each commodity receives maximum points. The remaining sums will be scored by a linear normalization to the highest sum.

(15%) Metric: Proximity to Depot

1. (100%) Question: For each commodity group performed, is your intermediate maintenance activity located on or within 50 miles of a depot that accomplishes like commodity work?

Rationale: To capitalize on shared resources between the intermediate and depot activities to facilitate readiness.

Scoring: Yes or No answer. Yes answer receives all the points

(30%) CRITERIA #2 – The availability and condition of land, facilities and associated airspace (including training areas suitable for maneuver by ground, naval, or air forces throughout a diversity of climate and terrain, and staging areas for use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.

(10%) Attribute: Expansion Potential

(100%) Metric: Buildable Acres

1. (33%) Question: On your installation, are there buildable acres appropriately zoned for maintenance, as of the FY04 Appropriation Act?

Rationale: Establishes the expansion potential by commodity group.

Scoring: Yes or No answer for having buildable acres. Yes answer receives all the points. All commodity groups performed will receive this score.

2. (67%) Question: For each commodity group performed, how many acres are unrestricted and appropriately zoned for maintenance use as of the FY04 Appropriation Act?

Rationale: Establishes unrestricted expansion potential by commodity group. The size of unrestricted buildable acres is important as it shows an installation's potential to be a receiving location.

Scoring: The highest number of acres, for each commodity group, receives maximum points. The remaining numbers will be scored by linear normalization to the highest number.

(60%) Attribute: Facilities

(100%) Metric: Size, Type and Condition of Facilities

1. (100%) Question: For each commodity group performed, based on the FY04 Appropriation Act, identify the FY04 space (in thousand of Square Feet - KSF) by building type and condition code (C-1 through C-4) for all maintenance facility activity codes (FAC) and service category code numbers (CCN). Note: Include only funded and approved MILCONs up to and including the FY04 Appropriation Act that will be completed and available in FY04.

Rationale: Building condition and size, by type, are important in evaluating military value because they are the only fixed assets that affect the ability to perform the combat field support/intermediate maintenance mission. The question identifies the size and condition of the buildings being used for each commodity group for FY04.

Scoring: **(77%)** The percent of the total weighted size (by condition) divided by total size. (Weighted size condition codes: C-1 = 100% of SF, C-2 = 90% of SF, C-3 = 70% of SF, C-4 = 50% of SF). The highest percentage, for each commodity group, receives maximum points. The remaining percentages will be scored by linear normalization to the highest percentage.

(23%) Highest weighted size. The highest number of condition-weighted square footage, for each commodity group, receives maximum points. The remaining numbers will be scored by linear normalization to the highest number.

(30%) Attribute: Maintenance Operation/Environmental Restrictions

(50%) Metric: Operational Restrictions

1. (33%) Question: For each commodity group performed, is maintenance or operational testing constrained by electromagnetic radiation and/or emissions, or are waivers required, as of end of 1st quarter FY04? Indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

Rationale: Waivers and restrictions to maintenance or operational testing impede performance.

Scoring: Yes or No answer. No answer receives all the points. Permanent waivers will not be considered restrictions.

2. (33%) Question: For each commodity group performed, do noise restrictions or noise abatement procedures, or are waivers required, as of end of 1st quarter FY04, constrain maintenance or operational testing? Indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

Rationale: Waivers and restrictions to maintenance or operational testing impede performance.

Scoring: Yes or No answer. No answer receives all the points. Permanent waivers will not be considered restrictions.

3. (34%) Question: For each commodity group performed, are there restrictions, other than electromagnetic radiation and/or emissions, noise

restrictions/abatement procedures, or are waivers required, as of end of 1st quarter FY04,that restrict/constrain maintenance or operational testing? If there are other restrictions/constraints, indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

Rationale: Waivers and restrictions to maintenance or operational testing impede performance.

Scoring: Yes or No answer. No answer receives all the points. Permanent waivers will not be considered restrictions.

(50%) Metric: Environmental Capacity

1. (50%) Question: For each commodity group performed, during the performance of maintenance or operational testing, which commodity groups produce air emissions. (Note: emissions are identified in Table of DoD question #211). Answer Yes/No. List and describe any waivers due to expire between FY04 and FY09.

Rationale: Headroom can be determined from capacity DoD question #211. More emissions headroom is desired and shows capacity to expand.

Scoring: There are 8 emissions, each worth 1/8 total points. If the answer is yes and headroom is available, the commodity gets maximum points. If the answer is yes and there is no headroom, the commodity gets no points. If the answer is no, the commodity gets maximum points. DoD question #211 determines headroom.

2. (50%) Question: For each commodity group performed, during the performance of maintenance or operational testing, which commodity groups produce industrial wastewater? Answer Yes/No. List and describe any waivers due to expire between FY04 and FY09.

Rationale: Headroom can be determined from DoD question #282. Headroom is the difference between permitted daily capacity and peak outflow. More wastewater headroom is desired and shows capacity to expand.

Scoring: If the answer is yes and headroom is available, the commodity gets maximum points. If the answer is yes and there is no headroom, the commodity gets no points. If the answer is no, the commodity gets maximum points. DoD question #282 determines headroom

(15%) CRITERIA #3 – The ability to accommodate contingency, mobilization, and future total force requirements at both the existing and potential of receiving locations to support operations and training.

(40%) Attribute: Maintenance Capability

(100%) Metric: Workforce and Skills

1. (70%) Question: For each commodity group performed, what are the total non-deployable intermediate maintenance personnel assigned (includes military. civilians, contractors) for FY01, FY02, and FY03?

Rationale: This question indicates the depth of the workforce by commodity group.

Scoring: Determine the percentage of the intermediate maintenance personnel, for each commodity group, as compared to the total non-deployable intermediate maintenance manpower for all assigned commodity groups. The highest percentage receives maximum points. The remaining percentages will be scored by linear normalization to the highest percentage.

2. (15%) Question: Identify, by name, any accredited trade schools/colleges/ universities, within 50 miles distance from your activity, which provide training or trained personnel to support future maintenance workforce requirements; note any formal agreements**.**

Rationale: Size of adult secondary educational base provides potential opportunities to support sustainment of the technical workforce.

Scoring: The scoring will be broken into two parts, the highest sum in each section receives maximum points. The remaining sums will be scored by linear normalization to the highest sum. The two scores for each activity will be added and the resultant score will be applied to all commodity groups being performed at that activity.

(**50%)** Half of the points will be based on the total sum of the number of accredited trade schools/colleges/universities.

(50%) Half of the points will be based on the number of accredited trade schools/colleges/universities that have formal agreements.

3. (15%) Question: For each maintenance activity, what is the name of and distance to the nearest Metropolitan Statistical Area (MSA), and what is the total employment listed within the MSA for the following two Major Standard Occupational Classification (SOC) Groups: 49-0000 Installation, Maintenance, and Repair Occupations and selected 51-0000 Production Occupations?

Rationale: Identifies proximity and size of employment base needed to support surge and reconstitution efforts. Closer and larger skill base is desired.

Scoring: The highest score will receive all of the points. The remaining numbers will be scored by linear normalization to the highest number. The score will be applied to all commodity groups being performed at that activity. The following method will be used:

Score = Max Weight * [Distance Score] * [“Relative” Size Skill Base Score]

Where: “Max Weight” is the maximum points assigned to this question.

“Distance Score” is between 0 to 1 measured in the following chart:

Distance Score	**Distance to MSA**
1	Less than or equal to 50 Miles
.5	Between 51 to 75 Miles
.25	Between 76 to 100 Miles
0	Greater than 100 Miles

“Relative” Size Skill Base Score is 0 to 1 measured in the following chart using the listed ratio.

Relative Skill Base Score	**Size of the Market (49-0000 + 51-0000)** **----------** **Size of the Workforce**
1	If Ratio is greater than 10
.75	If Ratio is between 7.5 to 10
.5	If Ratio is between 2.5 to 7.5
.25	If Ratio is between 1.0 to 2.5
0	If Ratio is less than 1

(60%) Attribute: Proximity Considerations

(70%) Metric: Proximity to DoD Customers

1. (100%) Question: For each commodity group performed, list the DoD customers (Minimum size - Squadron/Battalion) that are located on or within 50 miles of your activity and the number of DLHs for each customer for FY03.

Rationale: Proximity of customers to the intermediate level activity enhances mission readiness and effectiveness.

Scoring: The more total direct labor hours, by commodity, in support of activities within 50 miles has the higher value. The highest number of DLHs, for each

commodity, receives maximum points. The remaining sums will be scored by linear normalization to the highest sum.

(30%) Metric: Proximity to Depot.

1. (100%) Question: For each commodity group performed, is your intermediate maintenance activity located on or within 50 miles of a depot that accomplishes like commodity work?

Rationale: To capitalize on shared resources between the intermediate and depot activities to facilitate readiness.

Scoring: A Yes or No answer. Yes answer receives all the points.

(5%) CRITERIA #4. The cost of operations and the manpower implications.

(100%) Attribute: Output per Manpower

(100%) Metric: Output per Manpower

1. (100%) Question: For each commodity group performed, list the average total number of assigned personnel onboard and the average total number of man hours for FY01 through FY03.

Rationale: An economic indicator of the value received from your labor workforce.

Scoring: The index, by commodity group performed, is determined by taking the sum of the total production hours for FY01 through FY03 divided by the sum of the total number of assigned personnel onboard for FY01 through FY03. The highest index for each commodity receives maximum points. The remaining indices will be scored by a linear normalization to the highest index.

SHIP OVERHAUL AND REPAIR

The Ship Overhaul and Repair Subgroup determined there were two subordinate functions for analysis, depot level and intermediate level. Because these subordinate functions for ship repair are similar, but require different levels of skills, resources, and mission, some identical attributes, metrics and questions are used in each subordinate function.

For the capacity analysis, commodities were prescribed for data collection. That approach allows comparison of capabilities and capacities with non-ship maintenance activities. For the military value analysis, data will be collected for functions at the activity level. This is less burdensome for the activities and yields sufficient data for an accurate ship overhaul and repair military value analysis.

The attributes and metrics for each criterion were carefully selected and weighted to give appropriate value, but not excessive value to any one criterion, attribute, metric or question. A macro sensitivity analysis was performed to validate this approach.

The Department of Defense military value approach was applied, which requires the Selection Criteria #1 through #4 total weight be 100 points or percent. The attributes, metrics and questions under each criterion likewise each total 100%. This approach allows a simple "roll-up" of percent military value by function and activity. Consistent with this approach, the scoring for each question gives 100% or full value to the best question response score with corresponding scores for the other activity responses; that is, $S_i = \frac{x_i}{x_{\max}}$. When the best score is the minimum, the relationship is $S_i = \frac{x_{\min}}{x_i}$.

A total of 23 questions are included for Data Call #2. Four additional questions will be scored using data captured by Data Call #1. These 27 questions are listed in Section 3 of this report.

FUNCTION: Depot
The weights of the four criteria are nearly equal. Criteria 3 is weighted the highest, because we value the ability to meet long-term adaptability, mobilization and contingency requirements. Criteria 1, 2, and 3 were weighted slightly higher than Criteria 4, as mission-effectiveness is paramount. Criteria 1 reflects the current capabilities, which are likely to remain valued in the foreseeable future. Criteria 2 on facilities is equally weighed with the ability to meet needs because Criteria 1 and 2 together represent the in-place features of the shipyards.

(25%) CRITERIA #1 - The current and future mission capabilities and the impact on operational readiness of Department of Defense's total force, including the impact on joint warfighting, training and readiness.

(25%) Attribute: Proximity Considerations

Rationale: Proximity to the Fleet, other government installations and private sector maintenance capabilities enables more effective and efficient support. Environmental constraints are included because geographic considerations such as proximity to urban areas contribute to limitations on industrial operations and ability to provide Fleet support.

(35%) Metric: Proximity to Ship Home Ports

(100%) Question: For ship maintenance activities, how many fleet units are home-ported at your installation and within 50 mi. Identify those ship classes receiving maintenance from your activity; identify the number of each type of maintenance event?

Note: Number of ship class receiving maintenance is the number served regardless of homeport. Installations should measure the distance to other installations using http://dtod1.mtmc.army.mil/. Distances should be one-way. Do not include ships accounted for in the homeport column in the within 50 mi column.

See Section 3 Ship Overhaul and Repair Question 1 for table.

Rationale: We value proximity to ship homeports because sites nearer the customer provide better repair resources. In particular ships near the ship maintenance activities have better access to technical expertise and equipment capabilities to correct equipment problems. Close location allows quicker response times and thus more effective support. Finally, close location imposes less disruption in sailor's lives when assigned to the ship maintenance activity for maintenance availability. The distance of 50 mi was chosen as the distance a ship could travel in half a day from setting sea and anchor detail to securing. A half-day was chosen as the amount of time a ship would likely spend to receive intermediate maintenance.

Scoring: The greater the number of ships (weighted proportionally by ship size in tons) in close proximity, the higher the activity score, as expressed below.
The score for activity *i* is $S_i = .5x_i + .5y_i$ where

$$x_i = \frac{t_i}{t_{\max}},$$

$t_i =$ number of ship types homeported at or within 50 miles of activity *i*,

$$y_i = \frac{n_i}{n_{\max}},$$

$$n_i = \sum_c z_c h_{ic} + .5\sum_c z_c f_{ic},$$

z_c is the standard tonnage of ship type *c*, h_{ic} is the number of ships of type *c* homeported at activity *i*, f_{ic} are the number of ships of type *c* homeported within 50 miles of activity *i* (but not at *i*) and *c* indexes the ship types. z_c will be obtained from Navy Fact File (www.chinfo.navy.mil/factfile/ffiletop.html)

(25%) Metric: Proximity to Other DoD

(100%) Question: For ship maintenance activities identify the name of DoD installations within 350 mi of your installation that have depot or intermediate maintenance capability**.**

Note: Installations should measure the distance to other installations using http://dtod1.mtmc.army.mil/. Distances should be one-way. Include only installations not activities within a fence-line.

Installation name	Distance	Depot (Yes/No)	Intermediate (Yes/No)

Rationale: Proximity to other DoD facilities provides for the opportunity to share maintenance capabilities and workload. Sharing maintenance capabilities can allow facilities to complement each other and provide better service to the Fleet. Sharing workload permits more efficient use of resources. 350 mi was chosen as distance that constitutes a DoD automobile travel day according to Joint Federal Travel Regulations (NAVSO P-6034)

Scoring: The greater the number of installations (weighted by close proximity) with depot or intermediate maintenance capability, the higher the score as expressed below.

The score for activity *i* is

$S_i = .34n_i + .33d_i + .33t_i$ where

n_i is activity i's number score, $n = \frac{k_i}{k_{\max}}$; where $k_i = \sum_j \begin{cases} .02x_i & \text{if } x_i \le 50 \\ 1 & \text{if } x_i > 50 \end{cases}$

d_i is activity i's distance score, $d_i = \frac{y_i}{y_{\max}}$,

t_i is activity i's type score $t_i = \frac{z_i}{z_{\max}}$,

x_i is the number of installations listed within 350 miles of site i,

$$y_i = \sum_j b_{ij}$$

$$b_{ij} = \begin{cases} 1 & \text{if the distance between activity i and installation } j \le 50 \\ .2 + .016(100 - \text{distance}) & 50 < \text{if the distance between activity i and installation } j \le 100 \\ .2 & 100 < \text{if the distance between activity i and installation } j \le 350 \end{cases}$$

$$z_i = \sum_j c_{ij} ,$$

$$c_{ij} = \begin{cases} 1 & \text{if installation j has only an intermediate or only a depot maintenance facility} \\ 2 & \text{if installation j has both intermediate and depot maintenance facilities} \end{cases}$$

j indexes the listed other close installations.

(25%) Metric: Proximity to Ship Support Activities

(100%) Question: For ship maintenance activities, what non-DoD ship support maintenance capabilities/companies has your activity contracted with or concluded an agreement for maintenance services?

Note: Installations should measure the distance to other installations from main gate to main gate using http://dtod1.mtmc.army.mil/. Contract/agreements include ISSA, MOA, MOU, etc.
For Total $ Value, answer in FY 03 dollars that are expended on the end item, for FY99 through FY03. Number of contracts equals Delivery Orders and contracts awarded.

Contractor Name	End Product (Service /item)	Distance	Number of contracts/ agreements in FY 99	Number of contracts/ agreements in FY 00	Number of contracts/ agreements in FY 01	Number of contracts/ agreements in FY 02	Number of contracts/ agreements in FY 03	Total $ (K) value

Rationale: The number of facilities and contracts as well as the extent of working relationships with non-DoD agencies and private sector companies provides the shipyard with additional resources. The relationships can help the shipyard meet requirements when the capacity or skills are not resident at the shipyard, thus allowing the depot to complete work packages otherwise not possible or more efficiently. The interaction with the private sector also can provide exposure to different practices, emerging technologies and a potential source of skilled labor, allowing the depot to evaluate alternative practices and adopt the best. The number of contracts, trend, and value represent the depth of the interaction with the private sector.

Scoring: The sum of: contractors; distance weighted by proximity; contracts trend (number of contracts per fiscal year); and the total value of the contracts, as expressed below.

The score for activity *i* is:

$S_i = .25k_i + .25d_i + .25c_i + .25v_i$ where

k_i is activity *i*'s number score, where $k_i = \sum_j \begin{cases} .02x_i & \text{if } x_i \le 50 \\ 1 & \text{if } x_i > 50 \end{cases}$

and x_i = the number of contractors,

d_i is activity *i*'s distance score, $d_i = \dfrac{y_i}{y_{\max}}$,

c_i is activity *i*'s number of contracts trend score $c_i = .9\left(\dfrac{z_i - z_{\min}}{z_{\max} - z_{\min}}\right) + .1$ if the activity reports any contracts and $c_i = 0$ if the activity does not report any contracts. z_i is the slope coefficient obtained from an ordinary least squares regression using number of contracts and a constant as the dependent variables and year as the independent variable, and z_{max} and z_{min} are the maximum and minimum z_i among activities reporting any contracting

$v_i = \dfrac{w_i}{w_{\max}}$ where w_i is the total value of contracts for an activity, $w_{\max}$ is the highest number of reported contracts

y_i is the number of installations listed within 350 miles of site *I*,

$$y_i = \sum_j b_{ij}$$

$$b_{ij} = \begin{cases} 1 & \text{if the distance between activity i and installation } j \le 50 \\ .2 + .016(100 - \text{distance}) & 50 < \text{if the distance between activity i and installation } j \le 100 \\ .2 & 100 < \text{if the distance between activity i and installation } j \le 350 \end{cases}$$

- End product is information for scenario development

(15%) Metric: Environmental Compliance and Permit Capacity

(100%) Question: Information scored: How many constraints by environmental issues, does your facility have with respect to how your activity conducts operations in FY 03?

Data collected in DOD Capacity Data Call questions numbered 199, 200, 201, 215, 218, 219, 238, 241, 245, 249, 250, 252, 254, 256, 257, 259, 260, 261, 263, 264, 284.

Rationale: Environmental restrictions limit industrial operations inhibiting mission accomplishment.

Scoring: An activity's score is the minimum number of all restrictions reported divided by the activity's total number of reported restrictions, as expressed below.

The score for activity *i* is $S_i = \frac{x_{\min}}{x_i}$ where x_i is the count of the listed DoD questions that the activity reports any restriction, and x_{min} is the minimum count among the responding activities. A DoD question is counted only once whether there are only one or multiple restrictions reported in that question. If x_{min}=0, then S_i=1 for activities reporting x_i=0, and $S_i = \frac{1}{x_i}$ for all other activities.

(50%) Attribute: Workload Classification

Rationale: A Naval ship cannot meet Fleet material readiness requirements without the breadth, experience and capabilities that a ship maintenance activity performs. This also represents the activity's ability to contribute to DoD's current and future mission readiness.

(30%) Metric: Specialized Capabilities

(100%) Question: For ship maintenance activities, has your ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table.

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes and specialized capabilities necessary for ship maintenance.

Scoring: The total number of capabilities identified by an activity divided by the highest number reported by any activity, as expressed below.

$S_i = \frac{x_i}{x_{\max}}$,where

$x_i=3c_i+2r_i+m_i$,

c_i is the number of responses activity i reports it has that are in the "capability" column below,

r_i is the number of certifications activity i reports it has that are in the "certification" column below,

m_i is the number of capabilities activity i reports it has that are in the "machine/equipment" column below, and

x_{max} is the maximum x_i reported.

Applies to all uses of this data in all criteria, attributes, and metrics:
Use the following multiplication factors for determining the capabilities score above.

Capability (x3)	**Machine/Equipment (x1)**	**Certification (x2)**
Ship class engineering and planning yard function	Thermal arc flame spray	Authority to perform Naval nuclear propulsion work
Nuclear powered ship reactor refueling capability and facility	Lathe, turret, cnc	Qualification to perform submarine safety (SUBSAFE) work
Capacity to install and service helicopter recovery systems aboard ship	Lathe, engine shaft	Dive unit qualified for water-borne propeller replacement, hydrophone repair, anchor repair
Perform submarine mast and antenna repair	Lathe, boring – propeller shafts	Other
Specialized experience in advanced technologies in Deep Ocean submergence platforms	Furnace, Carbon Arc	
Perform surface ship antenna repair	Cutting machine, gas – Cutting steel plate into structural shapes	
Periscope Repair & Test Facility	Furnace, Heat treating – heat treating/stress relieving large forgings	
Other	Mill, boring & turning – Machining of large mechanical components	
	Balancing machine – balancing large work pieces (propellers)	
	Cutting machine, NC, flame/plasma – cutting structural shapes from metal plate	
	Oven, vacuum drying – rapid drying of large electrical components (motors, gens)	
	Decarburization system – remove carbon from molten steel	
	Machine center, turning	
	Furnace, heat treating, car type – heat treating/stress relieving large propellers	
	Battery charger, submarine	
	Mill, boring horizontal, CNC	
	Grinder, cylindrical – precision grinding	
	Honing machine, horizontal – 32" dia to 25' long	

	Press, forging	
	Thermal spray/blast system – coatings to machinery parts	
	Furnace system – induction melting of metal for casting various components	
	Welder, robotic	
	Machining Center, CNC – large mechanical components	
	Radiography Imaging system – radiography QA inspection of foundry castings	
	Laser cutting machine, CNC	
	Milling Machine, CNC – Mfg wooden patterns for foundry casting molds	
	Mould conveyors – continuous casting of steel ingots	
	Auto propeller opt. Measurement syst – laser measurement of ship's propellers	
	Plasma/oxy cutting table, numerical control	
	Punching Machine, metal, turret type	
	Acoustical Test Facility – testing of transducers and hydrophones	
	Fatigue Test Tank Facility – Cyclical hydrostatic pressure testing of hull models and matl	
	Computer systems	
	Engineering Data Management Info and Control System	
	Boring Vertical MIL	
	Lathe, hollow spindle	
	Shaft Lathe	
	Lathe, boring, single end	
	Fastener workstation 6-axis CNC mill – turn center	
	Gyro test station	
	CNC Horizontal Multi-tool/ Program Center	
	Large 14" Pipe Bender	
	CNC Pipe Tee/ Branch Extrusion/ Cutting Center	
	Industrial Laboratory (Material Testing)	
	Antenna Range	
	5 axis Horizontal Machining Centers	
	Capacity to do weight tests using water bags	
	Other	

(25%) Metric: Ship Type/Class Serviced

(100%) Question: For ship maintenance activities, how many fleet units are home-ported at your installation and within 50 mi. Identify those ship classes receiving maintenance from your activity; identify the number of each type of maintenance event?

Note: Number of ship class receiving maintenance is the number served regardless of homeport. Installations should measure the distance to other installations using http://dtod1.mtmc.army.mil/. Distances should be one-way. Do not include ships accounted for in the homeport column in the within 50 mi column.

See Section 3 Ship Overhaul and Repair Question 1 for table

Rationale: The ship maintenance activity's recent experience on different ship classes represents accumulated expertise and knowledge. The greater breadth of classes served demonstrates depot suitability for a larger scope of maintenance capacity.

Scoring: The activity's score is the number of different ship classes that the activity has serviced, divided by the highest number reported by any activity.

The score for activity *i* is $S_i = \frac{t_i}{t_{\max}}$ where

$t_i =$ number of different ship types receiving maintenance from activity *i* and t_{max} is the maximum of the t_i.

(25%) Metric: Last Source

(100%) Question: For ship maintenance activities, has your ship repair activity been designated by a service or government agency as the last source for any ship type/ product? If so, identify the number of DLH used to produce that product and if a specialized capability is required.

Product	Service/ Agency designating activity as last source	Total DLH used to produce FY 99	Total DLH used to produce FY 00	Total DLH used to produce FY 01	Total DLH used to produce FY 02	Total DLH used to produce FY 03	Specialized capability required (Y/N)

Rationale: For some products, a ship maintenance activity has been designated the "last source". In this situation, other activities do not have the capability or the capacity to perform this work and DoD relies on the "last source" activities for these products.

Scoring: The sum of: last source products produced; last source trend (number of last source products per fiscal year); and DLHs used for last source production, as expressed below.

The score for activity *i* is $S_i=.5p_i+.3t_i+.2m_i$ where p_i is site *i*'s product score, t_i is activity *i*'s trend score, and m_i is activity *i*'s DLH score.

The product score for activity *i* is $p_i = \frac{x_i}{x_{\max}}$ where x_i is the number of different last source products the activity identifies, and x_{max} is the maximum among all responding activities.

The trend score for activity *i* is $t_i = .9\left(\frac{y_i - y_{\min}}{y_{\max} - y_{\min}}\right) + .1$ if the site reports any last source workload and $t_i=0$ if the site reports no last source workload. y_i is the slope coefficient obtained from an ordinary least squares regression using DLH and a constant as the dependent variables and year as the independent variable, and y_{max} and y_{min} are the maximum and minimum y_i among activities reporting any last source workload.

The DLH score for activity *i* is $m_i = \frac{z_i}{z_{\max}}$, where z_i is the sum of last source DLH worked from the fiscal years 1999 through 2003, and z_{max} is the maximum of the z_i.

(20%) Metric: Type of Ship Availabilities Performed

(100%) Question: For ship maintenance activities, how many fleet units are home-ported at your installation and within 50 mi. Identify those ship classes receiving maintenance from your activity; identify the number of each type of maintenance event?

Note: Number of ship class receiving maintenance is the number served regardless of homeport. Installations should measure the distance to other installations using http://dtod1.mtmc.army.mil/. Distances should be one-way. Do not include ships accounted for in the homeport column in the within 50 mi column.

See Section 3 Ship Overhaul and Repair Question 1 for table

Rationale: The depot's recent experience performing different availabilities represents accumulated expertise and knowledge. A greater breadth of availabilities demonstrates depot suitability for a larger scope of maintenance. The distance of 50 mi was chosen as the distance a ship could travel in half a day from setting sea and anchor detail to securing. A half-day was chosen as the amount of time a ship would likely spend to receive intermediate maintenance.

Scoring: The activity's score is the number of availabilities completed, each weighted by complexity, as expressed below.

The score for activity *i* is $S_i = \frac{n_i}{n_{\max}}$ where

$n_i = r_i + .8a_i + .6b_i + .4c_i$,
r_i is the number of refueling overhauls (RCOH) performed,
a_i is the number of ROH, COH and DPIA overhauls performed,
b_i is the number of other docking overhauls DSRA, EDSRA, DRAV, DMP, DPMA performed,
c_i is the number of non-docking overhauls PIA, POM, RAV, CN, INACT, ERP,EOH, PMA, SRA performed, and
n_{max} is the maximum weighted score reported.

(25%) Attribute: Workforce and Skills

Rationale: Specialized skills and workforce availability are a key component of production. They are the intellectual capital, which the ship maintenance activity must use and invest in to maintain current and future readiness.

(40%) Metric: Specialized Skills and Certifications

(100%) Question: For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes, specialized capabilities and worker skills necessary for ship maintenance.

Scoring: The total number of skills and certifications used in the last two years by an activity divided by the highest number reported by any activity, as expressed below.

$$S_i = \frac{y_i}{y_{\max}}$$

y_i is the score for capabilities/ skills used in last two years
where

$y_i = 3c_i + 2r_i + m_i$,

c_i is the number of responses activity *i* reports as used in the last two years that are in the "capability" column in the scoring table,

r_i is the number of certifications activity *i* reports as used in the last two years that are in the "certification" column in the scoring table,

m_i is the number of capabilities activity *i* reports as used in the last two years that are in the "machine/equipment" column in the scoring table, and

y_{max} is the maximum y_i reported.

Applies to all criteria, attributes, and metrics:
Use the following multiplication factors for determining the score above.
See Criteria 1, Workload Classification Attribute, Specialized Capabilities Question for scoring table

(35%) Metric: Quantity of Skilled Workers

(100%) Question: For Naval shipyards, for all shops provide your most current work force summary broken out in the categories below.

Note: Shops are defined as employees working in the following commodity groups: Heavy Fabrication, Foundry, Forge, Sheet Metal, Welding, Inside Machine, Marine (Outside) Machine, Boiler, Electrical, Piping, Wood Crafting, Shipwright, Electronics, Paint, Cranes & Rigging, Services, Tool Manufacture, Optical Instruments, Plastic Fabrication, Air Condition & Refrigeration, Environmental and Safety, Hazardous Material, Nuclear Engineering & Planning, Radiological Engineering and Health, Radiological Monitoring and Support, Nuclear Quality Assurance, Nuclear Project Management, Business Support, Nuclear Testing, Non-Nuclear Engineering & Planning, Non-Nuclear Quality Assurance, Non-Nuclear Project Management, Non-Nuclear Testing, Calibration.

First Line Supervisors	Journeymen	Apprentices

Rationale: The size and experience of the skilled workforce is a measure of the ability to meet production and contingency requirements.

Scoring: The activities score is a weighted score of the number of journeymen and apprentices divided by the sum of journeymen, apprentices, and first line supervisors reported by an activity, as expressed below.

The score for activity *i* is $S_i = .7\left(\frac{t_i}{t_{\max}}\right) + .3\begin{cases} \frac{x_i}{\bar{x}} & \text{if } x_i \le \bar{x} \text{ and } \bar{x} \ge .35 \\ \frac{2\bar{x} - x_i}{\bar{x}} & \text{if } x_i > \bar{x} \text{ and } \bar{x} \ge .35 \\ \frac{x_i}{.35} & \text{if } x_i \le \bar{x} \text{ and } \bar{x} < .35 \\ \frac{.7 - x_i}{.35} & \text{if } x_i > \bar{x} \text{ and } \bar{x} < .35 \end{cases}$ where

$x_i = \frac{.7 j_i + .3 a_i}{t_i}$,

j_i is the number of journeymen at activity *i*,

a_i is the number of apprentices at activity *i*,

t_i is the total number of journeymen, apprentices, and first-line supervisors at activity *i*, and

$\bar{x}$ is the average of the x_i.

(The different scoring depending on the mean relative to .35 is needed in case the average is very low, and there is one site that has a much higher x_i than the others. The scoring above is essentially an inverted "V", with a point at the mean getting 1, and falling off on both sides.)

(25%) Metric: Workforce Development Opportunities

(100%) Question: For Naval shipyards, how many hours of training were expended on the job, and how many dollars were provided to personnel for training during the listed fiscal years?

Note: Cost for apprentice program (row 1) should not be included in continuing education program (row 2).

	FY-02	FY-03
Funds expended for the apprenticeship program		
Funds expended to compensate workforce for continuing education, technical schools, maintenance of certifications, and college degreed programs.		
How many hours of training does you activity provide to each workforce employee for training or continuing education in support of maintaining trade skill technical experience for the listed years?		
Number of employees enrolled in training or continuing education in support of maintaining trade skill technical experience for the listed years?		
Number of apprentices enrolled in program each year.		
Number of apprentices that graduate each year.		

What percent of apprentices qualify for journeyman at the end of their apprenticeship for the listed years below?		

Rationale: Training and development programs are the key to maintaining the necessary ship maintenance and repair workforce. We evaluate both continuing education programs and apprenticeship programs because it is necessary to keep skills updated and to have a program that replenishes the skill base as the existing workforce attrites. In continuing education, we measure the strength by the funding and time devoted to training. In the apprenticeship program, we measure the strength by the size of the program and by how the site benefits from the program in graduating and retaining journeymen.

Scoring: The sum of the average of FY 02 and 03: training hours; the percent of apprentices that graduated; percentage of apprentices that become journeymen; and percentage of graduates still employed, as expressed below.

Activity score is $S_i = \frac{x_i}{x_{\max}}$, where x_i is activity workforce score; x_{max} is the highest workforce score reported,

$$x_i = \left(\frac{h_{02} + h_{03}}{2} \right).4 + \left(\frac{e}{g} \right).4 + (a).1 + .1k \ )$$

h_{yr} is number of training hours in year yr at activity i,

$e = \left(\frac{c_{02} + c_{03}}{2} \right)$, where c_{yr} is the number of apprentices graduated in year yr at activity i

$g = \left(\frac{d_{02} + d_{03}}{2} \right)$ where d_{yr} is the number of apprentices enrolled in year yr at activity i

$a = \left(\frac{f_{02} + f_{03}}{2} \right)$, f_{yr} is the percentage of apprentice graduates that become journeymen in year *yr* at activity *i*

k is $k = \left(\frac{j_{02} + j_{03}}{2} \right)$, j_{yr} is the percentage of apprentice graduates still employed.

(25%) CRITERIA #2 - The availability and condition of land, facilities and associated airspace (including training areas suitable for maneuver by ground, naval and air forces throughout a diversity of climate and terrain areas and staging areas for the use of Armed Forces in homeland defense missions) at both existing and potential receiving locations.

(100%) Attribute: Facilities

Rationale: A ship maintenance activity's facilities are a fundamental enabler for accomplishing its mission. Dry docks and piers are the primary location where ship maintenance events take

place. The industrial buildings and specialized facilities provide the supporting production areas and capabilities to conduct ship overhaul and repair.

(45%) Metric: Dry Dock Capacity

(100%) Question: For ship maintenance activities, list the following structural characteristics of each graving dry dock at your facility. Do not include non-operational dry docks.

Note: Assume 6-feet high standard blocking. Indicate if floatation assistance is required by including an asterisk in column 3 after ship class. Condition code provided by iNFADS (Navy Facility Asset Database System)

Dry dock number	Condition code	Largest ship class that dry dock can accommodate	Number of cranes serving dry dock	Maximum weight lifting capacity at the dry dock (tons)	Nuclear certified

Rationale: A significant amount of ship repair work can only be done in a dry dock, making the suitability of the dry dock the crucial facility in a depot. We break the dry dock value into three categories: size, nuclear certification, and condition. Larger dry docks are more valuable than smaller dry docks, because they provide more capability, and the private sector has fewer assets that can be used for the larger ships. Nuclear certification is included because it is necessary for repairs on Navy nuclear-powered ships, and similar facilities are less abundant in the private sector than conventional dry docks. The usefulness of the dry dock is degraded as the material condition falls.

Scoring: The sum of the activity's dry docks weighted by: ship class that can be accommodated; nuclear certification; facility condition code; number of cranes available; and maximum lift capacity of the cranes, as expressed below.

$$S_i = \frac{dd_i}{dd_{\max}}$$

$$dd_i = \sum_j [sc_{ij}(0.6) + n_{ij}(0.3)]cc_{ij} + (\frac{nc_{ij}}{nc_{\max}} + \frac{c_{ij}}{c_{\max}})(0.1),$$

where dd_i is the dry dock score for activity *i* and

sc_{ij} is the score for the largest class ship that will fit in dry dock *j* at activity i receives all points.

$$sc_{ij} = \begin{cases} 1 & \text{if the largest ship class that the dry dock can accommodate is a CVN or CV} \\ .85 & \text{if the largest ship class that the dry dock can accommodate is a LHD, LHA or AOE} \\ .65 & \text{if the largest ship class that the dry dock can accommodate is a LPD or LSD} \\ .5 & \text{if the largest ship class that the dry dock can accommodate is a CG, DDG, DD, or SSBN} \\ .4 & \text{if the largest ship class that the dry dock can accommodate is a SSN} \\ .3 & \text{if the largest ship class that the dry dock can accommodate is a FFG} \\ .1 & \text{if the largest ship class that the dry dock can accommodate is a MCM, MHC, or PC} \end{cases}$$

n_{ij} =1 if dry dock *j* at activity *i* is nuclear certified, and
n_{ij} =0 if it is not nuclear,

cc_{ij} is the condition code score for dry dock *j* at activity *i*,

$$cc_{ij} = \begin{cases} 1 & \text{if the condition code is "adequate"} \\ .66 & \text{if the condition code is "substandard"} \\ .33 & \text{if the condition code is "inadequate"} \end{cases}$$

nc_{ij} is score for the number of cranes serving dry dock *j* at activity *i*:

$$nc_{ij} = \begin{cases} .25 & \text{if the dry dock is served by only 1 crane} \\ .5 & \text{if the dry dock is served by 2 cranes} \\ .75 & \text{if the dry dock is served by 3 cranes} \\ 1 & \text{if the dry dock is served by 4 or more cranes} \end{cases}$$

c_{ij} is the maximum crane lift capacity among the cranes serving dry dock *j* at activity *i*, and

$c_{\max}$ is the maximum dry dock crane capacity available among all dry docks answering the question.

Scoring Note: maximum lift capacity at any shipyard dry dock is the highest response received to this question.

(30%) Metric: Pier and Wharf Capacity

(100%) Question: Information scored: pier capacity

Information obtained from Capacity Data Call DoD 11, 612 and DoD 613.

Rationale: An activity's pier and wharf capacity are essential for pre- and post-dry dock evolutions, and for non-dry dock availabilities. The docking period for a ship availability is usually about two-thirds of the total availability length. Adequate pier or wharf capacity is required to complete the remainder of the availability.

Scoring: The sum of the activity's piers/wharves weighted by capacity for: pier length; depth at pier; shore power; lift capacity of the cranes; sanitary waste; compressed air; nuclear certification; and condition code, as expressed below.

$S_i = \frac{p_i}{p_{\max}}$ where

$$p_i = \sum_i \{[\frac{l_i}{l_{\max}}(0.1) + \frac{d_i}{d_{\max}}(0.1) + \frac{e_i}{e_{\max}}(0.1) + \frac{c_i}{c_{\max}}(0.1) + \frac{w_i}{w_{\max}}(0.1) + \frac{a_i}{a_{\max}}(0.1) + n_i(0.4)]*cc_{ij}\}$$

Where:

l_{ij} is the length of pier *j* at activity *i* and $l_{\max}$ is the maximum length of all piers answering this question,

d_{ij} is the depth at pier *j* at activity *i* and $d_{\max}$ is the maximum depth of all piers answering the question,

e_{ij} is the shore power available at pier *j* at activity *i*, and $e_{\max}$ is the maximum shore power available of all piers answering the question,

c_{ij} is the crane capacity at pier *j* at activity *i*, and $c_{\max}$ is the maximum crane capacity available at all piers answering the question,

w_{ij} is sanitary waste capacity at pier *j* at activity *i*, and $w_{\max}$ is the maximum waste capacity available at all piers answering the question,

a_{ij} is the compressed air at the pier, and $a_{\max}$ is the maximum compressed air available at all piers answering the question

n_{ij} is 1 if nuclear capable, and 0 if non-nuclear capable

cc_{ij} is the condition code of the pier as received from Data call #1 DoD question 11 for the pier and is evaluated at:

$$cc_{ij} = \begin{cases} 1 & \text{if the condition code is "adequate"} \\ .66 & \text{if the condition code is "substandard"} \\ .33 & \text{if the condition code is "inadequate"} \end{cases}$$

(10%) Metric: Industrial Building Availability

(100%) Question: For ship maintenance activities, provide the following information for each identified shop.

Shop	Maximum length of equipment that can be	Maximum volume of equipment that can be	Maximum wt of equipment that can be

	worked on	worked on	worked
Machine shop			
Heavy fabrication			
Welding			
Electrical			
Shipwright			
Optical instruments			
Foundry			
Forge			
Sheet metal			
Piping			
Paint			

Rationale: Industrial buildings provide the space for shop work, which is needed to perform work that either must be or is more efficiently performed off-ship. In addition to valuing specific equipment capabilities in other questions, we want to value the shop facilities by the limitations that they have on what size equipment they can work. We measure size in the three dimensions (length, volume, and weight).

Scoring: The activity shop score is the sum of length, volume and weight, as defined below, as expressed below.

$S_i = \frac{d_i}{d_{\max}}$ where d_i activity score, d_{max} is highest score reported

$$d_i = \sum \left(\frac{l_i}{l_{\max}} + \frac{v_i}{v_{\max}} + \frac{w_i}{w_{\max}} \right)$$

l_i is maximum length of equipment that can be worked on any inside shop facility at activity i,

v_i is maximum volume of equipment that can be worked on any inside shop facility
w_i is maximum weight of equipment that can be worked on any inside shop facility

(10%) Metric: Dry Dock and Pier Crane Support

(100%) Question: For ship maintenance activities, for each pier or wharf provide the following at your installation.

Pier/wharf Name	Number of portal and fixed cranes serving pier/wharf	Max lift capacity at pier/wharf

Rationale: For a ship undergoing repair, it is often necessary to physically remove or replace major ship equipment while the ship is in dry dock or at pier side. The number of portal and fixed cranes plus their total lift capability determines the shipyard's ability to complete repair and installation on this major ship equipment.

Scoring: Activity pier/wharf crane score is total of the number of cranes value plus the pier/wharf maximum lift capacity divided by highest capacity reported, as defined below, as expressed below.

$$S_i = \frac{p_i}{p_{\max}} \text{ where}$$

$$p_i = \sum_j \left(c_{ij} + \frac{l_{ij}}{l_{\max}} \right)$$

$$c_{ij} = \begin{cases} .25 & \text{if the pier/wharf is served by only 1 crane} \\ .5 & \text{if the pier/wharf is served by 2 cranes} \\ .75 & \text{if the pier/wharf is served by 3 cranes} \\ 1 & \text{if the pier/wharf is served by 4 or more cranes} \end{cases}$$

l_{ij} is maximum lift capacity at pier/wharf,

l_{max} is maximum lift capacity at any pier/wharf,

j indexes the piers and wharves at each site, and

p_{max} is the maximum of the p_i.

(5%) Metric: Specialized Facilities

(100%) Question: For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table.

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes and specialized capabilities necessary for ship maintenance.

Scoring: The total number of capabilities identified by an activity divided by the highest number reported by any activity, as expressed below.

$S_i = \frac{x_i}{x_{\max}}$,where

$x_i = 3c_i + 2r_i + m_i$,

c_i is the number of responses activity *i* reports it has that are in the "capability" column of the scoring table,

r_i is the number of certifications activity *i* reports it has that are in the "certification" column of the scoring table,

m_i is the number of capabilities activity *i* reports it has that are in the "machine/equipment" column of the scoring table, and

x_{max} is the maximum x_i reported.

Applies to all criteria, attributes, and metrics:
Use the following multiplication factors for determining the score above.
See Criteria 1, Workload Classification Attribute, Specialized Capabilities Question for scoring table

(30%) CRITERIA #3 - The ability to accommodate contingency, mobilization, and future total force requirements at both existing and potential receiving locations to support operations and training.

(45%) Attribute: Facilities

Rationale: A ship maintenance activity's facilities are a fundamental enabler for accomplishing its mission. Dry docks and piers are the primary location where ship maintenance events take place. The industrial buildings and specialized facilities provide the supporting production areas and capabilities to conduct ship overhaul and repair. For the ability to accommodate contingency and mobilization, an activity's facilities received greater weight, because the development of new facilities may take substantial time to build.

(45%) Metric: Dry Dock Capacity

(100%) Question: For ship maintenance activities, list the following structural characteristics of each graving dry dock at your facility. Do not include non-operational dry docks.

Note: Assume 6-feet high standard blocking. Indicate if floatation assistance is required by including an asterisk in column 3 after ship class. Condition code provided by iNFADS (Navy Facility Asset Database System)

Dry dock number	Condition code	Largest ship class that dry dock can accommodate	Number of portal and fixed cranes serving dry dock	Maximum crane lifting capacity at the dry dock (tons)	Nuclear certified

Rationale: A significant amount of ship repair work can only be done in a dry dock, making the suitability of the dry dock the crucial facility in a depot. We break the dry dock value into three categories: size, nuclear certification, and condition. Larger dry docks are more valuable than smaller dry docks, because they provide more capability, and the private sector has fewer assets that can be used for the larger ships. Nuclear certification is included because it is necessary for repairs on Navy nuclear-powered ships, and similar facilities are less abundant in the private sector than conventional dry docks. The usefulness of the dry dock is degraded as the material condition falls.

Scoring: The activity score is total dry dock score divided by the highest number reported by all activities. Dry dock scores are a weighted score of the largest ship class that can be accepted, plus nuclear certification times the condition code value plus weighted score of the number of cranes available and maximum lift capacity.

$$S_i = \frac{dd_i}{dd_{\max}}$$

$$dd_i = \sum_j [sc_{ij}(0.6) + n_{ij}(0.3)]cc_{ij} + (\frac{nc_{ij}}{nc_{\max}} + \frac{c_{ij}}{c_{\max}})(0.1),$$

where dd_i is the dry dock score for activity *i* and

sc_{ij} is the score for the largest class ship that will fit in dry dock *j* at activity i receives all points.
;

$$sc_{ij} = \begin{cases} 1 & \text{if the largest ship class that the dry dock can accommodate is a CVN or CV} \\ .85 & \text{if the largest ship class that the dry dock can accommodate is a LHD, LHA or AOE} \\ .65 & \text{if the largest ship class that the dry dock can accommodate is a LPD or LSD} \\ .5 & \text{if the largest ship class that the dry dock can accommodate is a CG, DDG, DD, or SSBN} \\ .4 & \text{if the largest ship class that the dry dock can accommodate is a SSN} \\ .3 & \text{if the largest ship class that the dry dock can accommodate is a FFG} \\ .1 & \text{if the largest ship class that the dry dock can accommodate is a MCM, MHC, or PC} \end{cases}$$

n_{ij} =1 if dry dock *j* at activity *i* is nuclear certified, and n_{ij} =0 if it is not nuclear,

cc_{ij} is the condition code score for dry dock *j* at activity *i*,

$$cc_{ij} = \begin{cases} 1 & \text{if the condition code is "adequate"} \\ .66 & \text{if the condition code is "substandard"} \\ .33 & \text{if the condition code is "inadequate"} \end{cases}$$

nc_{ij} is score for the number of cranes serving dry dock *j* at activity *i*:

$$nc_{ij} = \begin{cases} .25 & \text{if the dry dock is served by only 1 crane} \\ .5 & \text{if the dry dock is served by 2 cranes} \\ .75 & \text{if the dry dock is served by 3 cranes} \\ 1 & \text{if the dry dock is served by 4 or more cranes} \end{cases}$$

c_{ij} is the maximum crane lift capacity among the cranes serving dry dock *j* at activity *i*, and $c_{\max}$ is the maximum dry dock crane capacity available among all dry docks answering the question.

Scoring Note: maximum lift capacity at any shipyard dry dock is the highest response received to this question.

(5%) Metric: Pier and Wharf Capacity

(100%) Question: Information scored: pier capacity

Information obtained from Capacity Data Call DoD612 and DoD613.

Rationale: An activity's pier and wharf capacity are essential for pre- and post-dry dock evolutions, and for non-dry dock availabilities. The docking period for a ship availability is usually about two-thirds of the total availability length. Adequate pier or wharf capacity is required to complete the remainder of the availability.

Scoring: The activity score is the total pier score divided by highest activity score reported. The total pier score is the sum of the length plus the depth plus shore power available plus crane capacity plus sanitary waste capacity plus compress air plus nuclear certification multiplied by the condition code value. Each value is divided by the highest value reported by any activity, as expressed below.

$$S_i = \frac{p_i}{p_{\max}} \text{ where}$$

$$p_i = \sum_j \{[\frac{l_{ij}}{l_{\max}}(0.1) + \frac{d_{ij}}{d_{\max}}(0.1) + \frac{e_{ij}}{e_{\max}}(0.1) + \frac{c_{ij}}{c_{\max}}(0.1) + \frac{w_{ij}}{w_{\max}}(0.1) + \frac{a_{ij}}{a_{\max}}(0.1) + n_{ij}(0.4)]*cc_{ij}\}$$

Where:

l_{ij} is the length of pier *j* at activity *i* and $l_{\max}$ is the maximum length of all piers answering this question,

d_{ij} is the depth at pier *j* at activity *i* and $d_{\max}$ is the maximum depth of all piers answering the question,

e_{ij} is the shore power available at pier *j* at activity *i*, and $e_{\max}$ is the maximum shore power available of all piers answering the question,

c_{ij} is the crane capacity at pier *j* at activity *i*, and $c_{\max}$ is the maximum crane capacity available at all piers answering the question,

w_{ij} is sanitary waste capacity at pier *j* at activity *i*, and $w_{\max}$ is the maximum waste capacity available at all piers answering the question,

a_{ij} is the compressed air at the pier, and $a_{\max}$ is the maximum compressed air available at all piers answering the question

n_{ij} is 1 if nuclear capable, and 0 if non-nuclear capable

cc_{ij} is the condition code of the pier as received from Data call #1 DoD question 11 for the pier and is evaluated at:

$$cc_{ij} = \begin{cases} 1 & \text{if the condition code is "adequate"} \\ .66 & \text{if the condition code is "substandard"} \\ .33 & \text{if the condition code is "inadequate"} \end{cases}$$

(15%) Metric: Industrial Building Availability

(100%) Question: For ship maintenance activities, provide the following information for each identified shop.

Shop	Maximum length of equipment that can be worked on	Maximum volume of equipment that can be worked on	Maximum wt of equipment that can be worked
Machine shop			
Heavy fabrication			
Welding			
Electrical			
Shipwright			

Optical instruments			
Foundry			
Forge			
Sheet metal			
Piping			
Paint			

Rationale: Industrial buildings provide the space for shop work, which is needed to perform work that either must be, or is, more efficiently performed off-ship. In addition to valuing specific equipment capabilities in other questions, we want to value the shop facilities by the limitations that they have on what size equipment they can work. We measure size in the three dimensions (length, volume, and weight).

Scoring: The activity shop score is length plus volume plus weight, each value is divided by the highest reported value from all activities. Activity score is the shop score divided by the highest score, as expressed below.

$S_i = \frac{d_i}{d_{\max}}$ where d_i activity score, d_{max} is highest score reported

$$d_i = \sum \left(\frac{l_i}{l_{\max}} + \frac{v_i}{v_{\max}} + \frac{w_i}{w_{\max}} \right)$$

l_i is maximum length of equipment that can be worked on any inside shop facility at activity i,

v_i is maximum volume of equipment that can be worked on any inside shop facility
w_i is maximum weight of equipment that can be worked on any inside shop facility

(10%) Metric: Dry Dock and Pier Crane Support

(100%) Question: For ship maintenance activities, for each pier or wharf provide the following at your installation.

Pier/wharf Name	Number of portal and fixed cranes serving pier/wharf	Max lift capacity at pier/wharf

Rationale: For a ship undergoing repair, it is often necessary to physically remove or replace major ship equipment while the ship is in dry dock or at pier side. The number of portal and fixed cranes plus their total lift capability determines the shipyard's ability to complete repair and installation on this major ship equipment.

Scoring: The sum of the activity's dry docks weighted by: ship class that can be accommodated; nuclear certification; facility condition code; number of cranes available; and maximum lift capacity of the cranes, as expressed below.

$$S_i = \frac{p_i}{p_{\max}} \text{ where}$$

$$p_i = \sum_j \left(c_{ij} + \frac{l_{ij}}{l_{\max}} \right)$$

$$c_{ij} = \begin{cases} .25 & \text{if the pier/wharf is served by only 1 crane} \\ .5 & \text{if the pier/wharf is served by 2 cranes} \\ .75 & \text{if the pier/wharf is served by 3 cranes} \\ 1 & \text{if the pier/wharf is served by 4 or more cranes} \end{cases}$$

l_{ij} is maximum lift capacity at pier/wharf,

l_{max} is maximum lift capacity at any pier/wharf,

j indexes the piers and wharves at each site, and

p_{max} is the maximum of the p_i.

(25%) Metric: Specialized Facilities

(100%) Question: For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table.

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes and specialized capabilities necessary for ship maintenance.

Scoring: The total number of capabilities identified by an activity divided by the

highest number reported by any activity, as expressed below.

$$S_i = \frac{x_i}{x_{\max}} \text{,where}$$

$x_i = 3c_i + 2r_i + m_i$,

c_i is the number of responses activity i reports it has that are in the "capability" column of the scoring table,

r_i is the number of certifications activity i reports it has that are in the "certification" column of the scoring table,

m_i is the number of capabilities activity i reports it has that are in the "machine/equipment" column of the scoring table, and

x_{max} is the maximum x_i reported.

Applies to all criteria, attributes, and metrics:
Use the following multiplication factors for determining the score above.
See Criteria 1, Workload Classification Attribute, Specialized Capabilities Question for scoring table

(35%) Attribute: Workforce and Skills

Rationale: Specialized skills and workforce availability are a key component of production. They are the intellectual capital with which the ship maintenance activity must use and invest to maintain current and future readiness. A skilled workforce requires significant time to expand in the event of a contingency or mobilization.

(30%) Metric: Specialized Skills and Certifications

(100%) Question: For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table.

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes and specialized capabilities necessary for ship maintenance.

Scoring: The total number of capabilities identified by an activity divided by the highest number reported by any activity, as expressed below.

$$S_i = \frac{y_i}{y_{\max}}$$

y_i is the score for capabilities/ skills used in last two years where

$y_i = 3c_i + 2r_i + m_i$,

c_i is the number of responses activity *i* reports it has as used in the last two years that are in the "capability" column in the scoring table,

r_i is the number of certifications activity *i* reports it has as used in the last two years that are in the "certification" column in the scoring table,

m_i is the number of capabilities activity *i* reports it has as used in the last two years that are in the "machine/equipment" column in the scoring table, and

y_{max} is the maximum y_i reported.

Applies to all criteria, attributes, and metrics:
Use the following multiplication factors for determining the score above.
See Criteria 1, Workload Classification Attribute, Specialized Capabilities Question for scoring table

(20%) Metric: Quantity of Skilled Workers

(100%) Question: For Naval shipyards, for all Shops provide your most current work force summary broken out in the categories below.

Note: Shops are defined as employees working in Heavy Fabrication, Foundry, Forge, Sheet Metal, Welding, Inside Machine, Marine (Outside) Machine, Boiler, Electrical, Piping, Wood Crafting, Shipwright, Electronics, Paint, Cranes & Rigging, Services, Tool Manufacture, Optical Instruments, Plastic Fabrication, Air Condition & Refrigeration, Environmental and Safety, Hazardous Material, Nuclear Engineering & Planning, Radiological Engineering and Health, Radiological Monitoring and Support, Nuclear Quality Assurance, Nuclear Project Management, Business Support, Nuclear Testing, Non-Nuclear Engineering & Planning, Non-Nuclear Quality Assurance, Non-Nuclear Project Management, Non-Nuclear Testing, Calibration.

First Line Supervisors	Journeymen	Apprentices

Rationale: The size and experience of the skilled workforce is a measure of the ability to meet production and contingency requirements.

Scoring: The activities score is a weighted score of the number of journeymen and apprentices divided by the sum of journeymen, apprentices, and first line supervisors reported by an activity, as expressed below.

The score for activity *i* is $S_i = .7\left(\frac{t_i}{t_{\max}}\right) + .3\begin{cases} \frac{x_i}{\bar{x}} & \text{if } x_i \le \bar{x} \text{ and } \bar{x} \ge .35 \\ \frac{2\bar{x} - x_i}{\bar{x}} & \text{if } x_i > \bar{x} \text{ and } \bar{x} \ge .35 \\ \frac{x_i}{.35} & \text{if } x_i \le \bar{x} \text{ and } \bar{x} < .35 \\ \frac{.7 - x_i}{.35} & \text{if } x_i > \bar{x} \text{ and } \bar{x} < .35 \end{cases}$ where

$x_i = \frac{.7 j_i + .3 a_i}{t_i}$,

j_i is the number of journeymen at activity *i*,

a_i is the number of apprentices at activity *i*,

t_i is the total number of journeymen, apprentices, and first-line supervisors at activity *i*, and

$\bar{x}$ is the average of the x_i.

(The different scoring depending on the mean relative to .35 is needed in case the average is very low, and there is one site that has a much higher x_i than the others. The scoring above is essentially an inverted "V", with a point at the mean getting 1, and falling off on both sides.

(50%) Metric: Workforce Development Opportunities

(100%) Question: For Naval shipyards, how many hours of training were expended on the job, and how many dollars were provided to personnel for training during the listed fiscal years?

Note: Cost for apprenticeship program (row 1) should not be included in continuing education program (row 2)

	FY-02	FY-03
Funds expended for the apprenticeship program		
Funds expended to compensate workforce for continuing education, technical schools, maintenance of certifications, and college degreed programs.		
How many hours of training does you activity provide to each workforce employee for training or continuing education in support of maintaining trade skill technical experience for the listed years?		
Number of employees enrolled in training or continuing education in support of maintaining trade skill technical experience for the listed years?		
Number of apprentices enrolled in program each year.		
Number of apprentices that graduate each year.		
What percent of apprentices qualify for journeyman at the end of their apprenticeship for the listed years?		

Rationale: This metric is particularly important to building a future workforce in response to contingency and mobilization needs, as well as that necessary for planned future maintenance. Training and development programs are the key to maintaining the necessary ship maintenance and repair workforce. We evaluate both continuing education programs and apprenticeship programs because it is necessary to keep skills updated and to have a program that replenishes the skill base as the existing workforce attrites. In continuing education, we measure the strength by the funding and time devoted to training. In the apprenticeship program, we measure the strength by the size of the program and by how the site benefits from the program in graduating and retaining journeymen.

Scoring: The sum of the average of FY 02 and 03: training hours; the percent of apprentices that graduated; percentage of apprentices that become journeymen; and percentage of graduates still employed, as expressed below.

Activity score is $S_i = \frac{x_i}{x_{\max}}$ where x_i is activity workforce score; x_{max} is the highest workforce score reported

x_i is $x_i = \left(\frac{h_{02} + h_{03}}{2} \right).4 + \left(\frac{e}{g} \right).4 + (a).1 + .1k \ )$ and h is number of training hours per year at an activity,

$e = \left(\frac{c_{02} + c_{03}}{2} \right)$ where c is the number of apprentices graduated per year

g is $g = \left(\frac{d_{02} + d_{03}}{2} \right)$ where d is the number of apprentices enrolled per year

a is $a = \left(\frac{\mathrm{f}_{02} + \mathrm{f}_{03}}{2} \right)$ f is the percentage of apprentice graduates that become journeymen per year

k is $k = \left(\frac{\mathrm{j}_{02} + j_{03}}{2} \right)$ j is the percentage of apprentice graduates still employed.

(20%) Attribute: Flexibility

Rationale: To support the readiness needs of the Fleet during contingency operations, mobilization, and return from combat zones, ship maintenance activities must have the ability to expand their workload. If required, they must also have access to private sector maintenance support to supplement their capabilities.

(35%) Metric: Regulatory Ability to Expand Operations

(100%) Question: Information scored: Amount of pollution-causing expansion. Use Capacity Data Call question DoD211

Rationale: Addresses the ability to perform additional workload in the face of environmental regulations.

Scoring: The sum of the difference between permitted and emitted air pollution expansion factors, as defined below, as expressed below.

$S_i = \frac{d_i}{d_{\max}}$ where d_i pollution expansion indicator, d_{max} is highest indicator

$$d_i = \frac{voc_i}{voc_{\max}} + \frac{nox_i}{nox_{\max}} + \frac{no_i}{no_{\max}} + \frac{co_i}{co_{\max}} + \frac{so_i}{so_{\max}} + \frac{pmt_i}{pmt_{\max}} + \frac{pmf_i}{\mathrm{pmf}_{\max}} + \frac{pb_i}{pb_{\max}}$$

voc_i is difference between permitted and emitted

nox_i is difference between permitted and emitted

no_i is NO_2 difference between permitted and emitted

co_i is CO difference between permitted and emitted

so_i is SO_2 difference between permitted and emitted

pmt_i is PM 10 difference between permitted and emitted

pmf_i is PM 2.5 difference between permitted and emitted

pb_i is difference between permitted and emitted, and the

max is the maximum difference for each pollutant.

(35%)Metric: Utility Expansion Opportunity

(100%) Question: Scored information: High voltage electrical capacity expansion room.

Use Capacity Data Call question DoD621

Rationale: Addresses the ability to acquire the energy necessary to execute additional workload.

Scoring: The activity score is the amount of off base daily capacity less the normal steady state daily load divided by the highest score reported, as expressed below.

$S_i = \frac{e_i}{e_{\max}}$ where

$e_i = ob - ns$ if $ob \geq ns$, and $e_i = 0$ *if* $ob < ns$,

ob is Off Base Daily Capacity
ns is Normal Steady State Daily Load

(30%) Contract Support and Expansion

1. **(50%) Question:** For ship maintenance activities, what non-DoD ship support maintenance capabilities/companies has your activity contracted with or concluded an agreement for maintenance services?

Note: Installations should measure the distance to other installations from main gate to main gate using http://dtod1.mtmc.army.mil/. Contract/agreements include ISSA, MOA, MOU, etc. For Total $ Value, answer in FY 03 dollars that are expended on the end item, for FY99 through FY03. Number of contracts equals Delivery Orders and contracts awarded.

Contractor Name	End Product (Service /item)	Distance	Number of contracts/ agreements in FY 99	Number of contracts/ agreements in FY 00	Number of contracts/ agreements in FY 01	Number of contracts/ agreements in FY 02	Number of contracts/ agreements in FY 03	Total $ (K) value

Rationale: The number of facilities and contracts as well as the extent of working relationships with non-DoD agencies and private sector companies provides the shipyard with additional resources. The relationships can help the shipyard meet requirements when the capacity or skills are not resident at the shipyard, thus allowing the depot to complete work packages otherwise not possible or more efficiently. The interaction with the private sector also can provide exposure to different practices, emerging technologies and a potential source of skilled labor, allowing the depot to evaluate alternative practices and adopt the best. The number of contracts, trend, and value represent the depth of the interaction with the private sector.

Scoring: The sum of: contractors; contracts trend (number of contracts per fiscal year); and the total value of the contracts, as expressed below.

$S_i = \dfrac{e_i}{e_{\max}}$ where

The score for activity e_i is

$e = .34n_i + .33c_i + .33v_i$ where

n_i is activity i's number of contractors, $n_i = \begin{cases} .02x_i & \text{if } x_i \le 50 \\ 1 & \text{if } x_i > 50 \end{cases}$

c_i is activity i's number of contracts trend score $c_i = .9\left(\frac{z_i - z_{\min}}{z_{\max} - z_{\min}}\right) + .1$ if the activity reports any contracts and $c_i=0$ if the activity does not reports any contracts. z_i is the slope coefficient obtained from an ordinary least squares regression using number of contracts and a constant as the dependent variables and year as the independent variable, and z_{max} and z_{min} are the maximum and minimum z_i among activities reporting any contracting

v_i is $v_i = \frac{w_i}{w_{\max}}$ where w_i is the total value of contracts for an activity, $w_{\max}$ is the highest reported total value of contracts for all activities

2. **(50%) Question:** For Naval shipyards, report the name and distance to the nearest Metropolitan Statistical Area (MSA), and report the total employment within the MSA in the following two Major Standard Occupational Classification (SOC) Groups:

49-0000 Installation, Maintenance, and Repair Occupations
51-0000 Production Occupations, excluding the following occupations Bakers; Butchers and Meat Cutters; Meat, Poultry, and Fish Cutters and Trimmers; Slaughterers and Meat Packers; Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders; Food Batchmakers; Food Cooking Machine Operators and Tenders; Laundry and Dry-Cleaning Workers; Pressers, Textile, Garment, and Related Materials; Sewing Machine Operators; Shoe and Leather Workers and Repairers; Shoe Machine Operators and Tenders; Sewers, Hand; Tailors, Dressmakers, and Custom Sewers; Textile Bleaching and Dyeing Machine Operators and Tenders; Textile Cutting Machine Setters, Operators, and Tenders ; Textile Knitting and Weaving Machine Setters, Operators, and Tenders; Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders; Fabric and Apparel Patternmakers ; Upholsterers; Furniture Finishers; Dental Laboratory Technicians; Medical Appliance Technicians; Ophthalmic Laboratory Technicians

Note: (MSA employment data is available via the Bureau of Labor Statistics at http://www.bls.gov/oes/2002/oessrcma.htm)

Metropolitan Statistical Area (name)	Distance (miles)	Total employment 49-0000	Total employment 51-0000

Rationale: The local labor market is a source of skilled or potentially trainable labor. This labor pool is important in the depot being able to replenish the workforce over the long-term. The size of the appropriate labor pool is represented by the workforce in industries with skills and aptitudes similar to those that shipyards value. The size of the labor pool desired is relative to the size of the workforce—if the depot workforce is large relative to the labor force, then there is little additional supply of labor. The proximity of the labor market is incorporated because it is harder to recruit workers who have to travel farther.

Scoring: The activity score is the distance to the MSA multiplied by the relative size of the MSA, as expressed below.

$S_i = d_i r_i$, where

$$d_i = \begin{cases} 1 & \text{if the distance to the MSA is less than or equal to 50 miles} \\ .5 & \text{if the distance to the MSA is more than 50 and less than 75 miles} \\ .25 & \text{if the distance to the MSA is more than 75 and less than 100 miles} \\ 0 & \text{if the distance to the MSA is more than 100 miles} \end{cases}$$

$$r_i = \begin{cases} 1 & \text{if } \dfrac{\text{specified MSA employment}}{\text{activity employment}} > 10 \\ .75 & \text{if } 7.5 < \dfrac{\text{specified MSA employment}}{\text{activity employment}} \le 10 \\ .5 & \text{if } 2.5 < \dfrac{\text{specified MSA employment}}{\text{activity employment}} \le 7.5 \\ .25 & \text{if } 1 < \dfrac{\text{specified MSA employment}}{\text{activity employment}} \le 2.5 \\ 0 & \text{if } \dfrac{\text{specified MSA employment}}{\text{activity employment}} \le 1 \end{cases}$$

(20%) CRITERIA #4 - The cost of operations and the manpower implications.

(20%) Attribute: Costs

Rationale: A simple and direct measure of an activity's cost of operations is total throughput cost per unit of work delivered.

(100%) Metric: Total Operating Costs

(100%) Question: For ship maintenance activities, what is your activity's total operating cost (less material) for FY 03 and FY 04 (budgeted)?

	FY 03 (K) $	FY 04 (Budgeted) (K) $
Total operating cost		

Rationale: A simple and direct measure of an activity's cost of operations is total throughput cost per unit of work delivered. This question requests the total operating cost for FY03 and FY04, which will be divided by workload delivered in direct labor hours (DLHs) in FY03 and FY04 respectively, as obtained by the Data Call #1, to give the unit cost of operations.

Material is excluded because it can vary significantly from year to year depending on the nature of the work performed and could skew the resultant metric.

Scoring: The activity score is sum of FY 03 and FY 04 operating cost divided by the sum of the FY 03 and 04 workload, as expressed below.

Activity score is $S_i = \frac{x_{\min}}{x_i}$ where $x_{\min}$ is the minimum among all responding activities,

$$x_i = \left(\frac{o_{03} + o_{04}}{w_{03} + w_{04}} \right),$$

o_{03} = operating cost for FY-03

o_{04} = operating cost for FY-04

w_{03} = sum of all FY-03 workload reported from DoD question 526 data call #1

w_{04} = sum of all FY-04 workload reported from DoD question 526 data call #1

(40%) Attribute: Workforce and Skills

Rationale: Specialized skills and workforce availability are a key component of production. They are the intellectual capital with which the ship maintenance activity must use and invest in, and are the single highest costs item for the activity.

(50%) Metric: Specialized Skills and Certifications

(100%) Question: For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table.

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes and specialized capabilities necessary for ship maintenance.

Scoring: The total number of capabilities identified by an activity divided by the highest number reported by any activity, as expressed below.

$$S_i = \frac{y_i}{y_{\max}}$$

y_i is the score for capabilities/ skills used in last two years where

$y_i=3c_i+2r_i+m_i$,

c_i is the number of responses activity *i* reports it has as used in the last two years that are in the "capability" column in the scoring table,

r_i is the number of certifications activity *i* reports it has as used in the last two years that are in the "certification" column in the scoring table,

m_i is the number of capabilities activity *i* reports it has as used in the last two years that are in the "machine/equipment" column in the scoring table, and

y_{max} is the maximum y_i reported.

Applies to all criteria, attributes, and metrics:
Use the following multiplication factors for determining the score above.
See Criteria 1, Workload Classification Attribute, Specialized Capabilities Question for scoring table

(40%) Metric: Quantity of Skilled Workers

(100%) Question: For Naval shipyards, for all Shops provide your most current work force summary broken out in the categories below.

Note: Shops are defined as employees working in Heavy Fabrication, Foundry, Forge, Sheet Metal, Welding, Inside Machine, Marine (Outside) Machine, Boiler, Electrical, Piping, Wood Crafting, Shipwright, Electronics, Paint, Cranes & Rigging, Services, Tool Manufacture, Optical Instruments, Plastic Fabrication, Air Condition & Refrigeration, Environmental and Safety, Hazardous Material, Nuclear Engineering & Planning, Radiological Engineering and Health, Radiological Monitoring and Support, Nuclear Quality Assurance, Nuclear Project Management, Business Support, Nuclear Testing, Non-Nuclear Engineering & Planning, Non-Nuclear Quality Assurance, Non-Nuclear Project Management, Non-Nuclear Testing, Calibration.

First Line Supervisors	Journeymen	Apprentices

Rationale: The size and experience of the skilled workforce is a measure of the ability to meet production and contingency requirements.

Scoring: The activities score is a weighted score of the number of journeymen and apprentices divided by the sum of journeymen, apprentices, and first line supervisors reported by an activity, as defined below, as expressed below.

The score for activity *i* is $S_i = .7\left(\frac{t_i}{t_{\max}}\right) + .3\begin{cases} \frac{x_i}{\bar{x}} & \text{if } x_i \le \bar{x} \text{ and } \bar{x} \ge .35 \\ \frac{2\bar{x} - x_i}{\bar{x}} & \text{if } x_i > \bar{x} \text{ and } \bar{x} \ge .35 \\ \frac{x_i}{.35} & \text{if } x_i \le \bar{x} \text{ and } \bar{x} < .35 \\ \frac{.7 - x_i}{.35} & \text{if } x_i > \bar{x} \text{ and } \bar{x} < .35 \end{cases}$ where

$x_i = \frac{.7 j_i + .3 a_i}{t_i}$,

j_i is the number of journeymen at activity *i*,

a_i is the number of apprentices at activity *i*,

t_i is the total number of journeymen, apprentices, and first-line supervisors at activity *i*, and

$\bar{x}$ is the average of the x_i.

(The different scoring depending on the mean relative to .35 is needed in case the average is very low, and there is one site that has a much higher x_i than the others. The scoring above is essentially an inverted "V", with a point at the mean getting 1, and falling off on both sides.)

(10%) Metric: Workforce Development Opportunities

(100%) Question: For Naval shipyards, how many hours of training were expended on the job, and how many dollars were provided to personnel for training during the listed fiscal years?

Note: Cost for apprenticeship program (row 1) should not be included in continuing education program (row 2).

	FY-02	FY-03
Funds expended for the apprenticeship program		
Funds expended to compensate workforce for continuing education, technical schools, maintenance of certifications, and college degreed programs.		
How many hours of training does you activity provide to each workforce employee for training or continuing education in support of maintaining trade skill technical experience for the listed years?		
Number of employees enrolled in training or continuing education in support of maintaining trade skill technical experience for the listed years?		
Number of apprentices enrolled in program each year.		
Number of apprentices that graduate each year.		

What percent of apprentices qualify for journeyman at the end of their apprenticeship for the listed years below?		

Rationale: Training and development programs maintain the critical ship maintenance and repair skills, and enable the site's workforce to new and emerging requirements and technologies. A well-educated and trained workforce is more likely to be flexible in the work that it can perform. We evaluate both continuing education programs and apprenticeship programs because it is necessary to keep skills updated and to have a program that replenishes the skill base as the existing workforce attrites. In continuing education, we measure the strength by the funding and time devoted to training. In the apprenticeship program, we measure the strength by the size of the program and by how the site benefits from the program in graduating and retaining journeymen.

Scoring: The average per person costs for the apprenticeship and continuing education programs, as defined below, as expressed below.

Activity score is $S_i = \frac{m_i}{m_{\max}}$, where m_i is activity funding score; $m_{\max}$ is the highest funding score reported

$$m_i = \left(\frac{n}{g}\right).5 + \left(\frac{l}{t}\right).5$$

$n = \left(\frac{p_{02} + p_{03}}{2}\right)$, p_{yr} is the amount of funding for the apprenticeship program in year *yr*,

$g = \left(\frac{d_{02} + d_{03}}{2}\right)$, d_{yr} is the number of apprentices enrolled in year *yr*,

$l = \left(\frac{b_{02} + b_{03}}{2}\right)$, b_{yr} is amount of funding for continuing education in year *yr*,

$t = \left(\frac{q_{02} + q_{03}}{2}\right)$, q_{yr} is the number of personnel enrolled in continuing education in year *yr*

(40%) Attribute: Efficiency

Rationale: An activity's efficiency of operations is an important contributor to its military value.

(100%) Metric: History of Efficient Operations

(100%) Question: For Naval shipyards, please provide the total number DLH used and the total number of budgeted DLH in the following maintenance events completed for the fiscal years FY 99, FY 00, FY 01, FY 02, FY 03, and FY 04.

See Section 3 Ship Overhaul and Repair Question 13 for table

Rationale: An activity's efficiency of operations contributes to its military value. This question will document efficiency by measuring the planned notional DLH of work for a ship availability compared to the actual man-days applied to complete the availability.

Scoring: The activity efficiency comparing actual and planned DLH and the DLH trend, as expressed below, as expressed below.

Activity score is $S_i = .7\left(\frac{x_{\max} - x_i}{x_{\max} - x_{\min}}\right) + .3c_i$ where

$x_i = \frac{u - p}{p}$,

u is total used DLH for all six years,
p is total planned DLH for six years,
x_{max} and x_{min} are the maximum and minimum x_i reported,
c_i is activity i's efficiency trend score $c_i = \left(\frac{z_{\max} - z_i}{z_{\max} - z_{\min}}\right)$ if the activity reports any maintenance events, $c_i=0$ if the site reports no DLH used.
z_i is the slope coefficient obtained from an ordinary least squares regression using x_i as the dependent variable and year and a constant as the independent variables

FUNCTION: Intermediate Maintenance
Criteria 1 is most heavily weighted to reflect the belief that IMA's are Fleet following activities, without purpose when fleet units are not collocated with the IMA. By being close to fleet units, IMA's have the ability to provide a quick turn-around and short response time to Fleet emergent and routine maintenance needs. Criteria 1 and 2 together represent the in-place features of the IMA. Criteria 3 is next most important because it reflects the ability to meet future requirements as new platforms join the Navy inventory. Additionally, it provides the capability to meet contingency needs. Although Criteria 4 is an important factor for maintenance, the need to meet readiness requirements is the driving force for maintenance activities.

(50%) CRITERIA #1 - The current and future mission capabilities and the impact on operational readiness of Department of Defense's total force, including the impact on joint warfighting, training and readiness.

(45%) Attribute: Proximity Considerations

Rationale: The weight for Proximity Considerations reflects the view that IMA's are Fleet followers and must be close to Fleet units to provide useful service. Proximity to the Fleet, other government installations and private sector maintenance capabilities enables more effective and efficient support. Environmental constraints are included because geographic considerations such as proximity to urban areas contribute to limitations on industrial operations and ability to provide Fleet support.

(70%) Metric: Proximity to Ship Home Ports

(100%) Question: For ship maintenance activities, how many fleet units are home-ported at your installation, within 50 mi. Identify those ship classes receiving maintenance from your activity; identify the number of each type of maintenance event?

Note: Number of ship class receiving maintenance is the number served regardless of homeport. Installations should measure the distance to other installations using http://dtod1.mtmc.army.mil/. Distance should be one-way. Do not include ships accounted for in the homeport column in the within 50 mi column.

See Section 3 Ship Overhaul and Repair Question 1 for table

Rationale: We value proximity to ship homeports because sites nearer the customer provide better repair resources. In particular ships near the ship maintenance activities have better access to technical expertise and equipment capabilities to correct equipment problems. Close location allows quicker response times and thus more effective support. Finally, close location imposes less disruption in sailor's lives when assigned to the ship maintenance activity for maintenance availability. The distance of 50 mi was chosen as the distance a ship could travel in half a day from setting sea and anchor detail to securing. A half-day was chosen as the amount of time a ship would likely spend to receive intermediate maintenance.

Scoring: The greater the number of ships (weighted proportionally by ship size in tons) in close proximity, the higher the activity score, as expressed below.

The score for activity *i* is $S_i = .5x_i + .5y_i$ where

$$x_i = \frac{t_i}{t_{\max}},$$

$t_i =$ number of ship types homeported at or within 50 miles of activity *i*,

$$y_i = \frac{n_i}{n_{\max}},$$

$$n_i = \sum_c z_c h_{ic} + .5\sum_c z_c f_{ic},$$

z_c is the standard tonnage of ship type *c*, h_{ic} is the number of ships of type *c* homeported at activity *i*, f_{ic} are the number of ships of type *c* homeported within 50 miles of activity *i* (but not at *i*) and *c* indexes the ship types. z_c will be obtained from Navy Fact File (www.chinfo.navy.mil/factfile/ffiletop.html)

(10%) Metric: Proximity to Other DoD

(100%) Question: For ship maintenance activities, identify the name of DoD installations within 350 mi of your installation that have depot or intermediate maintenance capability.

Note: Installations should measure the distance to other installations using http://dtod1.mtmc.army.mil/. Distances should be one-way. Include only installations not activities within a fence-line.

Installation name	Distance	Depot (Yes/No)	Intermediate (Yes/No)

Rationale: Proximity to other DoD facilities provides for the opportunity to share maintenance capabilities and workload. Sharing maintenance capabilities can allow facilities to complement each other and provide better service to the Fleet. Sharing workload permits more efficient use of resources. 350 mi was chosen as distance that constitutes a DoD automobile travel day according to Joint Federal Travel Regulations (NAVSO P-6034)

Scoring: The greater the number of installations (weighted by close proximity) with depot or intermediate maintenance capability, the higher the score, as expressed below, as expressed below.

The score for activity *i* is

$S_i = .34n_i + .33d_i + .33t_i$ where

n_i is activity *i*'s number score, $n = \frac{k_i}{k_{\max}}$; where $k_i = \sum_j \begin{cases} .02x_i & \text{if } x_i \le 50 \\ 1 & \text{if } x_i > 50 \end{cases}$

d_i is activity *i*'s distance score, $d_i = \frac{y_i}{y_{\max}}$,

t_i is activity *i*'s type score $t_i = \frac{z_i}{z_{\max}}$,

x_i is the number of installations listed within 350 miles of site *i*,

$$y_i = \sum_j b_{ij} \ ,$$

$$b_{ij} = \begin{cases} 1 & \text{if the distance between activity i and installation } j \le 50 \\ .2 + .016(100 - \text{distance}) & 50 < \text{if the distance between activity i and installation } j \le 100 \\ .2 & 100 < \text{if the distance between activity i and installation } j \le 350 \end{cases} ,$$

$$z_i = \sum_j c_{ij} \ ,$$

$$c_{ij} = \begin{cases} 1 & \text{if installation j has only an intermediate or only a depot maintenance facility} \\ 2 & \text{if installation j has both intermediate and depot maintenance facilities} \end{cases} , \text{ and}$$

j indexes the listed other close installations.

(10%) Metric: Proximity to Ship Support Activities

1. (50%) Question: For ship maintenance activities, what non-DoD ship support maintenance capabilities/companies have your activity contracted with or concluded an agreement for maintenance services?

Note: Installations should measure the distance to other installations using http://dtod1.mtmc.army.mil/. Contract/agreements include ISSA, MOA, MOU, etc. For Total $ Value, answer in FY 03 dollars that are expended on the end item, for FY99 through FY03. Number of contracts equals Delivery Orders and contracts awarded.

Contractor Name	End Product (Service /item)	Distance	Number of contracts/ agreements in FY 99	Number of contracts/ agreements in FY 00	Number of contracts/ agreements in FY 01	Number of contracts/ agreements in FY 02	Number of contracts/ agreements in FY 03	Total $ (K) value

Rationale: The number of facilities and contracts as well as the extent of working relationships with non-DoD agencies and private sector companies provides the shipyard with additional resources. The relationships can help the shipyard meet requirements when the capacity or skills are not resident at the shipyard, thus allowing the depot to complete work packages otherwise not possible or more efficiently. The interaction with the private sector also can provide exposure to different practices, emerging technologies and a potential source of skilled labor, allowing the depot to evaluate alternative practices and adopt the best. The number of contracts, trend, and value represent the depth of the interaction with the private sector.

Scoring: The sum of: contractors; distance weighted by proximity; contracts trend (number of contracts per fiscal year); and the total value of the contracts, as expressed below.

The score for activity *i* is:

$S_i = .25k_i + .25d_i + .25c_i + .25v_i$ where

k_i is activity *i*'s number score, where $k_i = \begin{cases} .02x_i & \text{if } x_i \le 50 \\ 1 & \text{if } x_i > 50 \end{cases}$

and x_i = the number of contractors,

d_i is activity *i*'s distance score, $d_i = \dfrac{y_i}{y_{\max}}$,

c_i is activity *i*'s number of contracts trend score $c_i = .9\left(\dfrac{z_i - z_{\min}}{z_{\max} - z_{\min}}\right) + .1$ if the activity reports any contracts and $c_i = 0$ if the activity does not reports any contracts. z_i is the slope coefficient obtained from an ordinary least squares regression using number of contracts and a constant as the dependent variables and year as the independent variable, and z_{max} and z_{min} are the maximum and minimum z_i among activities reporting any contracting,

$v_i = \dfrac{w_i}{w_{\max}}$ where w_i is the total value of contracts for an activity, $w_{\max}$ is the highest number of reported contracts

y_i is the number of installations listed within 350 miles of site *I*,

$$y_i = \sum_j b_{ij}$$

$$b_{ij} = \begin{cases} 1 & \text{if the distance between activity i and contractor } j \le 50 \\ .2 + .016(100 - \text{distance}) & 50 < \text{if the distance between activity i and contractor } j \le 100 \\ .2 & 100 < \text{if the distance between activity i and contractor } j \le 350 \end{cases}$$

- End product is information for scenario development

2. (50%) Question: For ship intermediate maintenance activities identify any DoD activities, which are co-located with the activity that provide non-maintenance type support to fleet units under-going maintenance.

Support	Y/N
Berthing	
Navy schools	

Magazines	

Rationale: Ships under-going maintenance benefit from having total support co-located with the maintenance activity. This minimizes the need to transport weapons, TAD costs, or extended travel by sailors for training or berthing.

Scoring: The activity score is value based on the number of co-located activities, as defined below.

The score for activity *i* is

$$S_i = \begin{cases} 0 & \text{if none of the support activities are co-located} \\ .33 & \text{if one of the support activities are co-located} \\ .67 & \text{if two of the support activities are co-located} \\ 1 & \text{if all three of the support activities are co-located} \end{cases}$$

(10%) Metric: Environmental Compliance and Permit Capacity:

(100%) Question: Information scored: Amount of pollution expansion capability.

Use Capacity Data Call question DoD211

Rationale: Addresses the ability to perform additional workload in the face of environmental regulations.

Scoring: The sum of the difference between permitted and emitted air pollution expansion factors, as expressed below.

$S_i = \dfrac{d_i}{d_{\max}}$ where d_i pollution expansion indicator, d_{max} is highest indicator

$$d_i = \frac{voc_i}{voc_{\max}} + \frac{nox_i}{nox_{\max}} + \frac{no_i}{no_{\max}} + \frac{co_i}{co_{\max}} + \frac{so_i}{so_{\max}} + \frac{pmt_i}{pmt_{\max}} + \frac{pmf_i}{\mathrm{pmf}_{\max}} + \frac{pb_i}{pb_{\max}}$$

voc_i is difference between permitted and emitted

nox_i is difference between permitted and emitted

no_i is NO_2 difference between permitted and emitted

co_i is CO difference between permitted and emitted

so_i is SO_2 difference between permitted and emitted

pmt_i is PM 10 difference between permitted and emitted

pmf_i is PM 2.5 difference between permitted and emitted

pb_i is difference between permitted and emitted, and the

max is the maximum difference for each pollutant.

(35%) Attribute: Workload Classification

Rationale: A Naval ship cannot meet Fleet material readiness requirements without the breadth, experience and capabilities that a ship maintenance activity performs. This also represents the activity's ability to contribute to DoD's current and future mission readiness.

(30%) Taking Maintenance & Repair to the Fleet

(100%) Question: For ship intermediate maintenance activities, identify your organization's ability to provide ship overhaul and repair capability to units at other area bases, forward sites, or overseas.

Note: Function includes CASREP response, SRA, underway testing, etc. This does not include any part of the activity which is designated to regularly deploy.

Function	Location	DLH TAD for maintenance in FY 03	Total workload in DLH for FY 03

Rationale: Part of the military value of an intermediate ship maintenance activity is its ability to deliver maintenance assets to units at other area bases, forward sites, or overseas when required by the Fleet.

Scoring: The activity score is the weighted sum of the number of functions divided by the highest number reported plus the ratio of TAD DLH to total workload, as expressed below.

The score for activity *i* is

$S_i = .5f_i + .5m_i$ where

f_i is $f_i = \frac{x_i}{x_{\max}}$ where x_i is the sum of functions reported at an activity, $x_{\max}$ is the greatest number of functions reported

m_i is $m_i = \frac{y_i}{y_{\max}}$ where y_i is the ratio of TAD DLH to total workload DLH as defined below, and y_{max} is the maximum ratio reported by all activities.

y_i is $y_i = \frac{t_{man}}{t_{tot}}$, where t_{man} is the sum of reported TAD DLH, t_{tot} is the total DLH workload reported for all functions at each location

(70%) Metric: Type of Ship Maintenance & Repair Performed

1. **(60%) Question:** For ship maintenance activities, how many fleet units are home-ported at your installation and within 50 mi. Identify those ship classes receiving maintenance from your activity; identify the number of each type of maintenance event?

Note: Number of ship class receiving maintenance is the number served regardless of homeport. Installations should measure the distance to other installations using http://dtod1.mtmc.army.mil/. Distance should be one-way. Do not include ships accounted for in the homeport column in the within 50 mi column.

See Section 3 Ship Overhaul and Repair Question 1 for table

Rationale: The ship maintenance activity's recent experience on different ship classes represents accumulated expertise and knowledge. The greater breadth of classes served demonstrates depot suitability for a larger scope of maintenance capacity.

Scoring: The activity's score is the number of availabilities completed, each weighted by complexity, as expressed below.

The score for activity *i* is $S_i = \frac{n_i}{n_{\max}}$ where

$n_i = r_i + .8a_i + .6b_i + .4c_i$,

r_i is the number of refueling overhauls (RCOH) performed,
a_i is the number of ROH, COH and DPIA overhauls performed,
b_i is the number of other docking overhauls DSRA, EDSRA, DRAV, DMP, DPMA performed,
c_i is the number of non-docking overhauls PIA, POM, RAV, CN, INACT, ERP,EOH, PMA, SRA performed, and
n_{max} is the maximum weighted score reported.

2. **(40%) Question:** For ship intermediate maintenance activity, has your IMA facility done intra-/inter-service or inter-agency work in FY03?

Service/agency	Product	

Rationale: Measures the amount of inter-service and inter-agency work done in FY03, which is an indicator of the amount of Joint work being done by an activity.

Scoring: The activity score is sum of the intra-/inter-service or inter-agency work and product/agency combinations, as expressed below.

The score for activity *i* is $S_i = .5a_i + .5p_i$ where a_i is activity *i*'s agency score, and p_i is activity *i*'s product score.

The agency score for activity *i* is $a_i = \frac{x_i}{x_{\max}}$ where x_i is the number of different agencies that the activity does work for, and x_{max} is the maximum among all responding activities.

The product score for activity *i* is $p_i = \frac{y_i}{y_{\max}}$ where y_i is the number of different product and service/agency combinations that the activity identifies, and y_{max} is the maximum among all responding activities

(20%) Attribute: Workforce and Skills

Rationale: Specialized skills, certifications, and Navy Enlisted Classification codes are required for an activity to accomplish the varied work necessary for ship repair. It values workforce capability and meets the Navy's need for shore billets.

(30%) Metric: Specialized Skills and Certifications

(100%) Question: For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes, specialized capabilities and worker skills necessary for ship maintenance.

Scoring: The total number of skills and certifications used in the last two years by an activity divided by the highest number reported by any activity, as expressed below.

$$S_i = \frac{y_i}{y_{\max}}$$

y_i is the score for capabilities/ skills used in last two years where

$y_i = 3c_i + 2r_i + m_i$,

c_i is the number of responses activity *i* reports as used in the last two years that are in the "capability" column in the scoring table,

r_i is the number of certifications activity *i* reports as used in the last two years that are in the "certification" column in the scoring table,

m_i is the number of capabilities activity *i* reports as used in the last two years that are in the "machine/equipment" column in the scoring table, and

y_{max} is the maximum y_i reported.

Applies to all criteria, attributes, and metrics:
Use the following multiplication factors for determining the score above.
See Criteria 1, Workload Classification Attribute, Specialized Capabilities Question for scoring table.

(30%) Metric: Quantity of Skilled Workers

(100%) Question: For ship intermediate maintenance activities, list NECs assigned to this IMA activity.

Note: EDVR is Enlisted Distribution and Verification Report, NEC is Navy Enlisted Classification Code and reference document for NEC is MILPERSMAN 1221-010

NEC	NECs Required by EDVR for FY 04	NECs Assigned for FY 04	Projected NECs number required for FY 05	Projected NECs assigned in FY 05

Rationale: The size and experience of the skilled workforce is a measure of the ability to meet production and contingency requirements.

Scoring: The activity score is the vacant billet percent, which is the difference between the required billets and the assigned billets, divided by the required billets, as expressed below.

Activity score $S_i = \frac{x_{\min}}{x_i}$, x_i is the number of vacant billets per activity, $x_{\min}$ is the activity reporting the fewest vacant billets

x_i is $x_i = [(b_{04} - v_{04}) + (b_{05} - v_{05})]/(b_{04} + b_{05})$ where b is the sum of required billets in each year, and v is the sum of number of assigned billets in each year.

(10%) Metric: Educational (Workforce Development) Opportunities

(100%) Question: For ship intermediate maintenance activities, list the learning institutions (community colleges, universities, technical schools), both brick and mortar as well as on-line, for which Sailors have used tuition assistance, or similar DoD sponsored programs. Provide the number of Sailors attending each institution for the following fiscal years FY 03 and FY 04.

Institution	Number of Sailors attending in FY 03	Number of Sailors attending in FY 04

Rationale: Training and development programs are the key to maintaining the necessary ship maintenance and repair workforce. We evaluate continuing education programs because it is necessary to keep skills updated and to have a program that replenishes the skill base as the existing workforce attrites. In continuing education, we measure the strength by the funding and time devoted to training.

Scoring: The activity score is the number of institutions plus the percentage of Sailors attending institutions, as expressed below.

Activity score $S_i = \frac{x_i}{x_{\max}}$, where x_i is a function of personnel attending per activity and number of institutions, x_{max} is the activity reporting the greatest x_i.

where $x_i = .6s_i + \left(\frac{a}{p_i}\right).4$

a is the number of sailors attending all institutions in FY 03 and FY 04 divided by 2

p is the number of sailors assigned for FY 04

$s_i = \frac{u_i}{u_{\max}}$ where u_i is the number of learning institutions, and $u_{\max}$ is the maximum number of learning institutions at an activity.

(30%) Metric: Military Sea/ Shore Rotation Billets

(100%) Question: For ship intermediate maintenance activities, list the number of billets required and personnel assigned for pay-grades 0-6 through E-1 for FY 04 and FY 05.

Billets	Actual number assigned for FY 04	FY 04 required by ODVR/EDVR	FY 05 required by ODVR/EDVR	FY 05 projected assigned
O-6				
thru				
E-1				

Rationale: The availability of shore billets provides an opportunity for sailors to gain skills to take back to the Fleet. Sailors assigned shows workforce availability.

Scoring: The activity score is the vacant billet percent, which is the difference between the required billets and the assigned billets, divided by the required billets, as expressed below.

Activity score $S_i = \frac{x_{\min}}{x_i}$ where x_i is the number of vacant billets per activity, $x_{\min}$ is the activity reporting the fewest vacant billets

x_i is $x_i = [(b_{04} - v_{04}) + (b_{05} - v_{05})]/(b_{04} + b_{05})$, where b is the required billets per year, v is the number of assigned billets per year.

(15%) CRITERIA #2 - The availability and condition of land, facilities and associated airspace (including training areas suitable for maneuver by ground, naval and air forces throughout a diversity of climate and terrain areas and staging areas for the use of Armed Forces in homeland defense missions) at both existing and potential receiving locations.

(70%) Attribute: Facilities

Rationale: A ship maintenance activity's facilities are a fundamental enabler for accomplishing its mission. Dry docks and piers are the primary location where ship maintenance events take place. The industrial buildings and specialized facilities provide the supporting production areas and capabilities to conduct ship overhaul and repair.

(25%) Metric: Dry Dock Capacity

(100%) Question: For ship maintenance activities, list the following structural characteristics of each graving dry dock at your facility. Do not include non-operational dry docks.

Note: Assume 6-feet high standard blocking. Indicate if floatation assistance is required by including an asterisk in column 3 after ship class. Condition code provided by iNFADS (Navy Facility Asset Database System)

Dry dock number	Condition code	Largest ship class that dry dock can accommodate	Number of portal and fixed cranes serving dry-dock	Maximum crane lifting capacity at the dry dock (tons)	Nuclear certified

Rationale: A significant amount of ship repair work can only be done in a dry dock, making the suitability of the dry dock the crucial facility in a depot. We break the dry dock value into three categories: size, nuclear certification, and condition. Larger dry docks are more valuable than smaller dry docks, because they provide more capability, and the private sector has fewer assets that can be used for the larger ships. Nuclear certification is included because it is necessary for repairs on Navy nuclear-powered ships, and similar facilities are less abundant in the private sector than conventional dry docks. The usefulness of the dry dock is degraded as the material condition falls.

Scoring: The activity score is total dry dock score divided by the highest number reported by all activities. Dry dock scores are a weighted score of the largest ship class that can be accepted, plus nuclear certification times the condition code value plus weighted score of the number of cranes available and maximum lift capacity, as expressed below.

$$S_i = \frac{dd_i}{dd_{\max}}$$

$$dd_i = \sum_j [sc_{ij}(0.6) + n_{ij}(0.3)]cc_{ij} + (\frac{nc_{ij}}{nc_{\max}} + \frac{c_{ij}}{c_{\max}})(0.1),$$

where dd_i is the dry dock score for activity *i* and

sc_{ij} is the score for the largest class ship that will fit in dry dock *j* at activity i receives all points. ;

$$sc_{ij} = \begin{cases} 1 & \text{if the largest ship class that the dry dock can accommodate is a CVN or CV} \\ .85 & \text{if the largest ship class that the dry dock can accommodate is a LHD, LHA or AOE} \\ .65 & \text{if the largest ship class that the dry dock can accommodate is a LPD or LSD} \\ .5 & \text{if the largest ship class that the dry dock can accommodate is a CG, DDG, DD, or SSBN} \\ .4 & \text{if the largest ship class that the dry dock can accommodate is a SSN} \\ .3 & \text{if the largest ship class that the dry dock can accommodate is a FFG} \\ .1 & \text{if the largest ship class that the dry dock can accommodate is a MCM, MHC, or PC} \end{cases}$$

n_{ij} =1 if dry dock *j* at activity *i* is nuclear certified, and n_{ij} =0 if it is not nuclear,

cc_{ij} is the condition code score for dry dock *j* at activity *i*,

$$cc_{ij} = \begin{cases} 1 & \text{if the condition code is "adequate"} \\ .66 & \text{if the condition code is "substandard"} \\ .33 & \text{if the condition code is "inadequate"} \end{cases}$$

nc_{ij} is score for the number of cranes serving dry dock *j* at activity *i*:

$$nc_{ij} = \begin{cases} .25 & \text{if the dry dock is served by only 1 crane} \\ .5 & \text{if the dry dock is served by 2 cranes} \\ .75 & \text{if the dry dock is served by 3 cranes} \\ 1 & \text{if the dry dock is served by 4 or more cranes} \end{cases}$$

c_{ij} is the maximum crane lift capacity among the cranes serving dry dock *j* at activity *i*, and $c_{\max}$ is the maximum dry dock crane capacity available among all dry docks answering the question.

Scoring Note: maximum lift capacity at any shipyard dry dock is the highest response received to this question.

(25%) Metric: Pier and Wharf Capacity

(100%) Question: Information scored: pier capacity

Information obtained from Capacity Data Call DoD612 and DoD613.

Rationale: An activity's pier and wharf capacity are essential for pre- and post-dry dock evolutions, and for non-dry dock availabilities. The docking period for a ship availability is usually about two-thirds of the total availability length. Adequate pier or wharf capacity is required to complete the remainder of the availability.

Scoring: The activity score is the total pier score divided by highest activity score reported. The total pier score is the sum of the length plus the depth plus shore power available plus crane capacity plus sanitary waste capacity plus compress air plus nuclear certification multiplied by the condition code value. Each value is divided by the highest value reported by any activity, as expressed below.

$S_i = \frac{p_i}{p_{\max}}$ where

$$p_i = \sum_i \{[\frac{l_i}{l_{\max}}(0.1) + \frac{d_i}{d_{\max}}(0.1) + \frac{e_i}{e_{\max}}(0.1) + \frac{c_i}{c_{\max}}(0.1) + \frac{w_i}{w_{\max}}(0.1) + \frac{a_{ij}}{a_{\max}}(0.1) + n_{ij}(0.4)]*cc_{ij}\}$$

Where:

l_{ij} is the length of pier *j* at activity *i* and $l_{\max}$ is the maximum length of all piers answering this question,

d_{ij} is the depth at pier *j* at activity *i* and $d_{\max}$ is the maximum depth of all piers answering the question,

e_{ij} is the shore power available at pier *j* at activity *i*, and $e_{\max}$ is the maximum shore power available of all piers answering the question,

c_{ij} is the crane capacity at pier *j* at activity *i*, and $c_{\max}$ is the maximum crane capacity available at all piers answering the question,

w_{ij} is sanitary waste capacity at pier *j* at activity *i*, and $w_{\max}$ is the maximum waste capacity available at all piers answering the question,

a_{ij} is the compressed air at the pier, and $a_{\max}$ is the maximum compressed air available at all piers answering the question

n_{ij} is 1 if nuclear capable, and 0 if non-nuclear capable

cc_{ij} is the condition code of the pier as received from Data call #1 DoD question 11 for the pier and is evaluated at:

$$cc_{ij} = \begin{cases} 1 & \text{if the condition code is "adequate"} \\ .66 & \text{if the condition code is "substandard"} \\ .33 & \text{if the condition code is "inadequate"} \end{cases}$$

(25%) Metric: Industrial Building Availability

(100%) Question: For ship maintenance activities, provide the following information for each identified shop.

Shop	Maximum length of equipment that can be worked on	Maximum volume of equipment that can be worked on	Maximum wt of equipment that can be worked
Machine shop			
Heavy fabrication			
Welding			
Electrical			
Shipwright			
Optical instruments			
Foundry			
Forge			
Sheet metal			
Piping			
Paint			

Rationale: Industrial buildings provide the space for shop work, which is needed to perform work that either must be or is more efficiently performed off-ship. In addition to valuing specific equipment capabilities in other questions, we want to value the shop facilities by the limitations that they have on what size equipment they can work. We measure size in the three dimensions (length, volume, and weight).

Scoring: The activity shop score is the sum of length, volume and weight, as expressed below.

$S_i = \frac{d_i}{d_{\max}}$ where d_i activity score, d_{max} is highest score reported

$$d_i = \sum \left(\frac{l_i}{l_{\max}} + \frac{v_i}{v_{\max}} + \frac{w_i}{w_{\max}} \right)$$

l_i is maximum length of equipment that can be worked on any inside shop facility at activity i,

v_i is maximum volume of equipment that can be worked on any inside shop facility

w_i is maximum weight of equipment that can be worked on any inside shop facility

(15%) Metric: Dry Dock and Pier Crane Support

(100%) Question: For ship maintenance activities, for each pier or wharf provide the following at your installation.

Pier/wharf Name	Number of portal and fixed cranes serving pier/wharf	Max lift capacity at pier/wharf

Rationale: For a ship undergoing repair, it is often necessary to physically remove or replace major ship equipment while the ship is in dry dock or at pier side.
The number of portal and fixed cranes plus their total lift capability determines the shipyard's ability to complete repair and installation on this major ship equipment.

Scoring: The sum of the activity's dry docks weighted by: ship class that can be accommodated; nuclear certification; facility condition code; number of cranes available; and maximum lift capacity of the cranes, as expressed below.

$$S_i = \frac{p_i}{p_{\max}} \text{ where}$$

$$p_i = \sum_j \left(c_{ij} + \frac{l_{ij}}{l_{\max}} \right)$$

$$c_{ij} = \begin{cases} .25 & \text{if the pier/wharf is served by only 1 crane} \\ .5 & \text{if the pier/wharf is served by 2 cranes} \\ .75 & \text{if the pier/wharf is served by 3 cranes} \\ 1 & \text{if the pier/wharf is served by 4 or more cranes} \end{cases}$$

l_{ij} is maximum lift capacity at pier/wharf,

l_{max} is maximum lift capacity at any pier/wharf,

j indexes the piers and wharves at each site, and

p_{max} is the maximum of the p_i.

(10%) Metric: Specialized Facilities

(100%) Question: For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table.

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes and specialized capabilities necessary for ship maintenance.

Scoring: The total number of capabilities identified by an activity divided by the highest number reported by any activity, as expressed below.

$S_i = \frac{x_i}{x_{\max}}$,where

$x_i = 3c_i + 2r_i + m_i$,

c_i is the number of responses activity *i* reports that are in the "capability" column of the scoring table,

r_i is the number of certifications activity *i* reports that are in the "certification" column of the scoring table,

m_i is the number of capabilities activity *i* reports that are in the "machine/equipment" column of the scoring table, and

x_{max} is the maximum x_i reported.

Applies to all criteria, attributes, and metrics:
Use the following multiplication factors for determining the score above.
See Criteria 1, Workload Classification Attribute, Specialized Capabilities Question for scoring table

(30%) Attribute: Real Estate

Rationale: Availability of energy to support surge requirements or an increase in workload. Surge is the need to provide short turn-around maintenance support to the Fleet units who are departing to or returning from contingency operations.

(100%) Metric: Expansion Potential

(100%) Question: Scored information: High voltage electrical capacity expansion room.

Use Capacity Data Call question DoD621

Rationale: The availability of energy to support surge requirements or an increase of workload.

Scoring: The activity score is the amount of off base daily capacity less the normal steady state daily load divided by the highest score reported, as expressed below.

$S_i = \frac{e_i}{e_{\max}}$ where

$e_i = ob - ns$

ob is Off Base Daily Capacity

ns is Normal Steady State Daily Load

(25%) CRITERIA #3 - The ability to accommodate contingency, mobilization, and future total force requirements at both existing and potential receiving locations to support operations and training.

(45%) Attribute: Facilities

Rationale: A ship maintenance activity's facilities are a fundamental enabler for accomplishing its mission. Dry docks and piers are the primary location where ship maintenance events take place. The industrial buildings and specialized facilities provide the supporting production areas and capabilities to conduct ship overhaul and repair. For the ability to accommodate contingency and mobilization, an activity's facilities received greater weight, because the development of new facilities may take substantial time to build.

(25%) Metric: Dry Dock Capacity

(100%) Question: For ship maintenance activities, list the following structural characteristics of each graving dry dock at your facility. Do not include non-operational dry docks.

Note: Assume 6-feet high standard blocking. Indicate if floatation assistance is required by including an asterisk in column 3 after ship class. Condition code provided by iNFADS (Navy Facility Asset Database System)

Dry dock number	Condition code	Largest ship class that dry dock can accommodate	Number of portal and fixed cranes serving dry-dock	Maximum crane lifting capacity at the dry dock (tons)	Nuclear certified

Rationale: A significant amount of ship repair work can only be done in a dry dock, making the suitability of the dry dock the crucial facility in a depot. We break the dry dock value into three categories: size, nuclear certification, and condition. Larger dry docks are more valuable than smaller dry docks, because they provide more capability, and the private sector has fewer assets that can be used for the larger ships. Nuclear certification is included because it is necessary for repairs on Navy nuclear-powered ships, and similar facilities are less abundant in the private sector than conventional dry docks. The usefulness of the dry dock is degraded as the material condition falls.

Scoring: The activity score is total dry dock score divided by the highest number reported by all activities. Dry dock scores are a weighted score of the largest ship class that can be accepted, plus nuclear certification times the condition code value plus weighted score of the number of cranes available and maximum lift capacity, as expressed below.

$$S_i = \frac{dd_i}{dd_{\max}}$$

$$dd_i = \sum_j [sc_{ij}(0.6) + n_{ij}(0.3)]cc_{ij} + (\frac{nc_{ij}}{nc_{\max}} + \frac{c_{ij}}{c_{\max}})(0.1),$$

where dd_i is the dry dock score for activity *i* and

sc_{ij} is the score for the largest class ship that will fit in dry dock *j* at activity i receives all points.
;

$$sc_{ij} = \begin{cases} 1 & \text{if the largest ship class that the drydock can accommodate is a CVN or CV} \\ .85 & \text{if the largest ship class that the drydock can accommodate is a LHD, LHA or AOE} \\ .65 & \text{if the largest ship class that the drydock can accommodate is a LPD or LSD} \\ .5 & \text{if the largest ship class that the drydock can accommodate is a CG, DDG, DD, or SSBN} \\ .4 & \text{if the largest ship class that the drydock can accommodate is a SSN} \\ .3 & \text{if the largest ship class that the drydock can accommodate is a FFG} \\ .1 & \text{if the largest ship class that the drydock can accommodate is a MCM, MHC, or PC} \end{cases}$$

n_{ij} =1 if dry dock *j* at activity *i* is nuclear certified, and n_{ij} =0 if it is not nuclear,

cc_{ij} is the condition code score for dry dock *j* at activity *i*,

$$cc_{ij} = \begin{cases} 1 & \text{if the condition code is "adequate"} \\ .66 & \text{if the condition code is "substandard"} \\ .33 & \text{if the condition code is "inadequate"} \end{cases}$$

nc_{ij} is score for the number of cranes serving dry dock *j* at activity *i*:

$$nc_{ij} = \begin{cases} .25 & \text{if the dry dock is served by only 1 crane} \\ .5 & \text{if the dry dock is served by 2 cranes} \\ .75 & \text{if the dry dock is served by 3 cranes} \\ 1 & \text{if the dry dock is served by 4 or more cranes} \end{cases}$$

c_{ij} is the maximum crane lift capacity among the cranes serving dry dock *j* at activity *i*, and $c_{\max}$ is the maximum dry dock crane capacity available among all dry docks answering the question.

Scoring Note: maximum lift capacity at any shipyard dry dock is the highest response received to this question.

(35%) Metric: Pier and Wharf Capacity

(100%) Question: Information scored: pier capacity

Information obtained from Capacity Data Call DoD612 and DoD613.

Rationale: An activity's pier and wharf capacity are essential for pre- and post-dry dock evolutions, and for non-dry dock availabilities. The docking period for a ship availability is usually about two-thirds of the total availability length. Adequate pier or wharf capacity is required to complete the remainder of the availability.

Scoring: The activity score is the total pier score divided by highest activity score reported. The total pier score is the sum of the length plus the depth plus shore power available plus crane capacity plus sanitary waste capacity plus compress air plus nuclear certification multiplied by the condition code value. Each value is divided by the highest value reported by any activity, as expressed below.

$$S_i = \frac{p_i}{p_{\max}} \text{ where}$$

$$p_i = \sum_j \{[\frac{l_{ij}}{l_{\max}}(0.1) + \frac{d_{ij}}{d_{\max}}(0.1) + \frac{e_{ij}}{e_{\max}}(0.1) + \frac{c_{ij}}{c_{\max}}(0.1) + \frac{w_{ij}}{w_{\max}}(0.1) + \frac{a_{ij}}{a_{\max}}(0.1) + n_{ij}(0.4)]*cc_{ij}\}$$

Where:

l_{ij} is the length of pier *j* at activity *i* and $l_{\max}$ is the maximum length of all piers answering this question,

d_{ij} is the depth at pier *j* at activity *i* and $d_{\max}$ is the maximum depth of all piers answering the question,

e_{ij} is the shore power available at pier *j* at activity *i*, and $e_{\max}$ is the maximum shore power available of all piers answering the question,

c_{ij} is the crane capacity at pier *j* at activity *i*, and $c_{\max}$ is the maximum crane capacity available at all piers answering the question,

w_{ij} is sanitary waste capacity at pier *j* at activity *i*, and $w_{\max}$ is the maximum waste capacity available at all piers answering the question,

a_{ij} is the compressed air at the pier, and $a_{\max}$ is the maximum compressed air available at all piers answering the question

n_{ij} is 1 if nuclear capable, and 0 if non-nuclear capable

cc_{ij} is the condition code of the pier as received from Data call #1 DoD question 11 for the pier and is evaluated at:

$$cc_{ij} = \begin{cases} 1 & \text{if the condition code is "adequate"} \\ .66 & \text{if the condition code is "substandard"} \\ .33 & \text{if the condition code is "inadequate"} \end{cases}$$

(15%) Metric: Industrial Building Availability

(100%) Question: For ship maintenance activities, provide the following information for each identified shop.

Shop	Maximum length of equipment that can be worked on	Maximum volume of equipment that can be worked on	Maximum wt of equipment that can be worked
Machine shop			
Heavy fabrication			
Welding			
Electrical			
Shipwright			
Optical			

instruments			
Foundry			
Forge			
Sheet metal			
Piping			
Paint			

Rationale: Industrial buildings provide the space for shop work, which is needed to perform work that either must be or is more efficiently performed off-ship. In addition to valuing specific equipment capabilities in other questions, we want to value the shop facilities by the limitations that they have on what size equipment they can work. We measure size in the three dimensions (length, volume, and weight).

Scoring: The activity shop score is the sum of length, volume and weight, as expressed below.

$S_i = \frac{d_i}{d_{\max}}$ where d_i activity score, d_{max} is highest score reported

$$d_i = \sum \left(\frac{l_i}{l_{\max}} + \frac{v_i}{v_{\max}} + \frac{w_i}{w_{\max}} \right)$$

l_i is maximum length of equipment that can be worked on any inside shop facility at activity i,

v_i is maximum volume of equipment that can be worked on any inside shop facility
w_i is maximum weight of equipment that can be worked on any inside shop facility

(15%) Metric: Dry Dock and Pier Crane Support

(100%) Question: For ship maintenance activities, for each pier or wharf provide the following at your installation.

Pier/wharf Name	Number of portal and fixed cranes serving pier/wharf	Max lift capacity at pier/wharf

Rationale: For a ship undergoing repair, it is often necessary to physically remove or replace major ship equipment while the ship is in dry dock or at pier side. The number of portal and fixed cranes plus their total lift capability determines the shipyard's ability to complete repair and installation on this major ship equipment.

Scoring: The sum of the activity's dry docks weighted by: ship class that can be accommodated; nuclear certification; facility condition code; number of cranes available; and maximum lift capacity of the cranes, as expressed below.

$$S_i = \frac{p_i}{p_{\max}} \text{ where}$$

$$p_i = \sum_j \left(c_{ij} + \frac{l_{ij}}{l_{\max}} \right)$$

$$c_{ij} = \begin{cases} .25 & \text{if the pier/wharf is served by only 1 crane} \\ .5 & \text{if the pier/wharf is served by 2 cranes} \\ .75 & \text{if the pier/wharf is served by 3 cranes} \\ 1 & \text{if the pier/wharf is served by 4 or more cranes} \end{cases}$$

l_{ij} is maximum lift capacity at pier/wharf,

l_{max} is maximum lift capacity at any pier/wharf,

j indexes the piers and wharves at each site, and

p_{max} is the maximum of the p_i.

(10%) Metric: Specialized Facilities

(100%) Question: For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table.

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes and specialized capabilities necessary for ship maintenance.

Scoring: The total number of capabilities identified by an activity divided by the highest number reported by any activity, as expressed below.

$S_i = \frac{x_i}{x_{\max}}$, where

$x_i = 3c_i + 2r_i + m_i$,

c_i is the number of responses activity *i* reports that are in the "capability" column of the scoring table,

r_i is the number of certifications activity *i* reports that are in the "certification" column of the scoring table,

m_i is the number of capabilities activity *i* reports that are in the "machine/equipment" column of the scoring table, and

x_{max} is the maximum x_i reported.

Applies to all criteria, attributes, and metrics:
Use the following multiplication factors for determining the score above.
See Criteria 1, Workload Classification Attribute, Specialized Capabilities Question for scoring table.

(35%) Attribute: Workforce and Skills

Rationale: Specialized skills, certifications, and Navy Enlisted Classification codes are required by the activities to accomplish work as well as the efforts to continue to improve the skills of the workforce. It is weighted to value the workforce capability and meets the Navy's need for shore billets. A skilled workforce requires significant time to expand in the event of a contingency or mobilization.

(25%) Metric: Specialized Skills and Certifications

(100%) Question: For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table.

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes and specialized capabilities necessary for ship maintenance.

Scoring: The total number of capabilities identified by an activity divided by the highest number reported by any activity, as expressed below.

$S_i = \frac{y_i}{y_{\max}}$

y_i is the score for capabilities/ skills used in last two years where

$y_i=3c_i+2r_i+m_i$,

c_i is the number of responses activity *i* reports as used in the last two years that are in the "capability" column in the scoring table,

r_i is the number of certifications activity *i* reports as used in the last two years that are in the "certification" column in the scoring table,

m_i is the number of capabilities activity *i* reports as used in the last two years that are in the "machine/equipment" column in the scoring table, and

y_{max} is the maximum y_i reported.

Applies to all criteria, attributes, and metrics:
Use the following multiplication factors for determining the score above.
See Criteria 1, Workload Classification Attribute, Specialized Capabilities Question for scoring table.

(25%) Metric: Quantity of Skilled Workers

(100%) Question: For ship intermediate maintenance activities, list NECs assigned to this IMA activity.

Note: EDVR is Enlisted Distribution and Verification Report, NEC is Navy Enlisted Classification Code and reference document for NEC is MILPERSMAN 1221-010

NEC	NECs Required by EDVR for FY 04	NECs Assigned for FY 04	Projected NECs number required for FY 05	Projected NECs assigned in FY 05

Rationale: The size and experience of the skilled workforce is a measure of the ability to meet production and contingency requirements.

Scoring: The activity score is the vacant billet percent, which is the difference between the required billets and the assigned billets, divided by the required billets, as expressed below.

Activity score $S_i = \frac{x_{\min}}{x_i}$ x_i is the number of vacant billets per activity, $x_{\min}$ is the activity reporting the fewest vacant billets

x_i is $x_i = [(b_{04} - v_{04}) + (b_{05} - v_{05})]/(b_{04} + b_{05})$ where b is the sum of authorized number of billets in each year, and v is the sum of number of assigned billets in each year.

(25%) Metric: Educational (Workforce Development) Opportunities

(100%) Question: For ship intermediate maintenance activities, list the learning institutions (community colleges, universities, technical schools), both brick and mortar as well as on-line, for which Sailors have used tuition assistance, or similar DoD sponsored programs. Provide the number of Sailors attending each institution for the following fiscal years FY 03 and FY 04.

Institution	Number of Sailors attending in FY 03	Number of Sailors attending in FY 04

Rationale: Training and development programs are the key to maintaining the necessary ship maintenance and repair workforce. We evaluate continuing education programs because it is necessary to keep skills updated and to have a program that replenishes the skill base as the existing workforce attrites. In continuing education, we measure the strength by the funding and time devoted to training.

Scoring: The activity score is the number of institutions plus the percentage of Sailors attending institutions, as expressed below.

Activity score $S_i = \frac{x_i}{x_{\max}}$, where x_i is a function of personnel attending per activity and number of institutions, x_{max} is the activity reporting the greatest x_i.

where $x_i \quad = .6s_i + \left(\frac{a_i}{p_i}\right).4$

a_i is the number of sailors attending all institutions in FY 03 and FY 04 divided by 2

p_i is the number of sailors assigned for FY 03 and FY 04 divided by 2

$s_i = \frac{u_i}{u_{\max}}$ where u_i is the number of learning institutions, and $u_{\max}$ is the maximum number of learning institutions at an activity.

(25%) Metric: Military Sea/ Shore Rotation

(100%) Question: For ship intermediate maintenance activities, list the number of billets required and personnel assigned for pay-grades 0-6 through E-1 for FY 04 and FY 05.

Billets	Actual number assigned for FY 04	FY 04 required by ODVR/EDVR	FY 05 required by ODVR/EDVR	FY 05 projected assigned
O-6				
thru				
E-1				

Rationale: The availability of shore billets provides an opportunity for sailors to gain skills to take back to the Fleet. Sailors assigned shows workforce availability.

Scoring: The activity score is the vacant billet percent, which is the difference between the required billets and the assigned billets, divided by the required billets, as expressed below.

Activity score $S_i = \frac{x_{\min}}{x_i}$ where x_i is the number of vacant billets per activity, $x_{\min}$ is the activity reporting the fewest vacant billets

x_i is $x_i = [(b_{04} - v_{04}) + (b_{05} - v_{05})]/(b_{04} + b_{05})$ where b is the authorized number of billets per year, v is the number of assigned billets per year.

(20%) Attribute: Plant Value (Planned / recent operational capability improvements)

Rationale: Identifies the investment made in new capabilities and improvements.

(100%) Metric: Recent and Programmed Capital Investments

(100%) Question: For ship intermediate activity, what funded and in-progress investments Type I and II plant property and Type IV are occurring at this IMA?

Note: Only include projects funded through FY 04 Armed Services Appropriations Act.

Project	New capability	IOC date	Give specialized capability (Y/N)	$ Value

Rationale: Captures future capabilities of IMAs through capital improvements.

Scoring: The activity score is a weighted sum of the number of products plus specialized capability, as expressed below.

Activity score is $S_i = \frac{x_i}{x_{\max}}$ where

x_i is $x_i = .8p_i + .2u_i$, p is a sum of the number of reported projects

u_i where $u = \left\{ \begin{matrix} yes = 1 : \text{if unique capability} \\ no = 0 \end{matrix} \right\}$.

New capability/IOC date/$ value for scenario development

(10%) CRITERIA #4 - The cost of operations and the manpower implications

(50%) Attribute: Workforce and Skills

Rationale: Specialized skills, certifications, and Navy Enlisted Classification codes are required by the activities to accomplish work as well as the efforts to continue to improve the skills of the workforce. It is weighted to value the workforce capability and meets the Navy's need for shore billets.

(25%) Metric: Specialized Skills and Certifications

(100%) Question: For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability / skills or certifications?

Note: The second column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other item listed by activity.

See Section 3 Ship Overhaul and Repair Question 4 for table

Rationale: Ship maintenance activities have developed many specialized capabilities, which are mandatory to support complex ship overhaul and repair. These include critical processes, specialized capabilities and worker skills necessary for ship maintenance.

Scoring: The total number of skills and certifications used in the last two years by an activity divided by the highest number reported by any activity, as expressed below.

$$S_i = \frac{y_i}{y_{\max}}$$

y_i is the score for capabilities/ skills used in last two years where

$y_i = 3c_i + 2r_i + m_i$,

c_i is the number of responses activity *i* reports as used in the last two years that are in the "capability" column in the scoring table,

r_i is the number of certifications activity *i* reports as used in the last two years that are in the "certification" column in the scoring table,

m_i is the number of capabilities activity *i* reports as used in the last two years that are in the "machine/equipment" column in the scoring table, and

y_{max} is the maximum y_i reported.

Applies to all criteria, attributes, and metrics:
Use the following multiplication factors for determining the score above.

(25%) Metric: Quantity of Skilled Workers

(100%) Question: For ship intermediate maintenance activities, list NECs assigned to this IMA activity.

Note: EDVR is Enlisted Distribution and Verification Report, NEC is Navy Enlisted Classification Code and reference document for NEC is MILPERSMAN 1221-010

NEC	NECs Required by EDVR for FY 04	NECs Assigned for FY 04	Projected NECs number required for FY 05	Projected NECs assigned in FY 05

Rationale: The size and experience of the skilled workforce is a measure of the ability to meet production and contingency requirements.

Scoring: The activity score is the vacant billets divided by authorized billets less the assigned billets, as expressed below.

Activity score $S_i = \frac{x_{\min}}{x_i}$ x_i is the number of vacant billets per activity, $x_{\min}$ is the activity reporting the fewest vacant billets

x_i is $x_i = [(b_{04} - v_{04}) + (b_{05} - v_{05})]/(b_{04} + b_{05})$ where b is the sum of authorized number of billets in each year, and v is the sum of number of assigned billets in each year.

(25%) Metric: Educational (Workforce Development) Opportunities

(100%) Question: For ship intermediate maintenance activities, what was the IMA FY 03 TAD costs for training maintenance personnel required maintenance qualifications, NECs, and maintenance certifications?

Rationale: An educated workforce is a more capable workforce that can provide efficiencies. The more and varied the institutions, the greater the learning opportunities. The more sailors that take advantage of continuing education, the better the readiness of the activity.

Scoring: The activity score is the reported TAD expenditure divided by the highest reported expenditure, as expressed below.

Activity score is $S_i = \frac{x_i}{x_{\max}}$ where

x_i is the TAD funds reported by the activity

x_{max} is the highest reported expenditure of funds

(25%) Metric: Military Sea/ Shore Rotation Billets

(100%) Question: For ship intermediate maintenance activities, list the number of billets required and personnel assigned for pay-grades 0-6 through E-1 for FY 04 and FY 05.

Billets	Actual number assigned for FY 04	FY 04 required by ODVR/EDVR	FY 05 required by ODVR/EDVR	FY 05 projected assigned
O-6				
thru				
E-1				

Rationale: The availability of shore billets provides an opportunity for sailors to gain skills to take back to the Fleet. Sailors assigned shows workforce availability.

Scoring: The activity score is the vacant billet percent, which is the difference between the required billets and the assigned billets, divided by the required billets, as expressed below.

Activity score $S_i = \frac{x_{\min}}{x_i}$ where x_i is the number of vacant billets per activity, x_{min} is the activity reporting the fewest vacant billets

x_i is $x_i = [(b_{04} - v_{04}) + (b_{05} - v_{05})]/(b_{04} + b_{05})$ where b is the authorized number of billets per year, v is the number of assigned billets per year.

(30%) Attribute: Costs

Rationale: A simple and direct measure of an activity's cost of operations is total throughput cost per unit of work delivered.

(100%) Metric: Total Operating Costs

(100%) Question: For ship maintenance activities, what is your activity's total operating cost (less material) for FY 03 and FY 04 (budgeted)?

	FY 03 (K)$	FY 04 (budgeted) (K)$
Total operating cost		

Rationale: A simple and direct measure of an activity's cost of operations is total throughput cost per unit of work delivered. This question requests the total operating cost for FY03 and FY04, which will be divided by workload delivered in direct labor hours (DLHs) in FY03 and FY04 respectively, as obtained by the Capacity Data Call, to give the unit cost of operations. Material is excluded because it can vary significantly from year to year depending on the nature of the work performed and could skew the resultant metric.

Scoring: The activity score is sum of FY 03 and FY 04 operating cost divided by the sum of the FY 03 and 04 workload, as expressed below.

Activity score is $S_i = \frac{x_{\min}}{x_i}$ where $x_{\min}$ is the minimum among all responding activities,

$$x_i = \left(\frac{o_{03} + o_{04}}{w_{03} + w_{04}} \right),$$

o_{03} = operating cost for FY-03

o_{04} = operating cost for FY-04

w_{03} = sum of all FY-03 workload reported from DoD question 526 capacity data call

w_{04} = sum of all FY-04 workload reported from DoD question 526 capacity data call

(20%) Attribute: Plant Value & Maintenance Cost

Rationale: Captures the existing value of facilities, the continuing cost to maintain those facilities, and investment in improvements in capabilities.

(25%) Metric: Plant Replacement Value of Facilities & Equipment

(100%) Question: For ship intermediate maintenance activities, what is the total estimated replacement value of the equipment and buildings for this IMA?

Rationale: Maximize ships served relative to facilities and equipment investment.

Scoring: The activity score is the replacement value divided by the number of ships served, as expressed below.

Activity score is $S_i = \frac{x_{\min}}{x_i}$ where

x_i is $x_i = \frac{v_i}{b_i}$ where v is replacement value, b_i is the number of ships from ship repair sub-group IJCSG question 1

$x_{\min}$ is the lowest reported value

(25%) Metric: Maintenance & Repair of Buildings

(100%) Question: For ship intermediate maintenance activities, what were your activity's annual Real Property Maintenance (RPM) expenses (in $K) for FY 99-03?

	FY 99	FY 00	FY 01	FY 02	FY 03
Real Property Maintenance expenses $(K)					

Rationale: Maximize ships served relative to the continuing maintenance costs of facilities

Scoring: The activity score is the real property maintenance costs divided by the number of ships served, as expressed below.

Activity score $S_i = \frac{x_{\min}}{x_i}$ where $x_{\min}$ is the minimum maintenance cost per ship repaired and x_i is the activity score as defined by:

$$x_i = \frac{\sum_{FY} c_{rpm}}{S_{numbers}}$$

Where c_{rpm} is the RPM cost for each FY, and,

$S_{numbers}$ is the number of ships repaired at the SIMA as reported in Military Value question 1.

(50%) Metric: Recent and Programmed Capital Investments

(100%) Question: For ship intermediate activity, what funded and in-progress investments Type I and II plant property and Type IV are occurring at this IMA?

Note: Only include projects funded through FY 04 Armed Services Appropriations Act.

Project	New capability	IOC date	Give specialized capability (Y/N)	$ Value

Rationale: Captures future capabilities of IMAs through capital improvements.

Scoring: The activity score is a weighted sum of the number of products plus specialized capability, as expressed below.

Activity score is $S_i = \frac{x_i}{x_{\max}}$ where

x_i is $x_i = .8p + .2u$, p is a sum of the number of reported projects

u is $u = \#ofspecializedprojects$.

New capability/IOC date/$ value for scenario development

Section 3: Data Call

Munitions and Armaments

1. **New Question**: Which munitions explosive processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 1)

Table 1: Munitions Explosive Production Processes	Last 2 Yrs
1. Explosive and or propellant cold cast cure to include vacuum casting and/or injecting capability.	
2. Melt pour, to include metal parts pre-conditioning and post pour controlled cooling.	
3. Precision explosive pressing, to include explosive billet machining and sufficient tonnage and press daylight clearance for missiles.	
4. Extrusion of explosives and propellants.	
5. Kinetic energy munitions precision weigh and fill of propellant	
6. Loaded components and initiating devices (primers, delays, relays, detonators) to include drying, blending, and handling equipment that precludes direct personnel exposure.	
7. Infrared decoy flare pressing and/or extrusion	
8. Smoke munitions mixing and pressing.	
9. Nitration of cotton linters or wood pulp.	
10. Nitration of hexamine.	
11. Manufacture of nitrate Esters.	

2. **New Question**: Which munitions metal parts processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 2)

Table 2: Munitions Metal Parts	Last 2 Yrs
1. Deep draw steel cartridge cases	
2. Grenade cargo metal parts	
3. Projectile forging, heat treat, and machining	
4. High frag projectile metal parts to include large caliber forging (1000 ton presses), heat treat, ultrasonic and machining.	

3. **New Question:** Which munitions load, assemble, and pack (LAP) processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 3)

Table 3: Munitions Load, Assemble, and Pack (LAP)	**Last 2 Yrs**
1. Navy gun ammo	
2. Mortar ammo	
3. Mines and Obstacle Clearing Charges	
4. Artillery ammo	
5. Tank ammo	
6. Missile warhead	
7. Medium caliber ammo	
8. Demolition	
9. Rockets	
10. Small caliber ammo	
11. Bomb body	
12. Grenades	
13. Missiles	
14. Torpedo	
15. CAD/PAD	
16. Propelling Charges	
17. Kinetic energy munitions	
18. Flares	

4. **Existing Question DoD #521:** What is your maximum munitions production capacity?

5. **New Question:** For the type of facilities identified in Table 4, enter floor areas in thousand square feet (KSF) for buildings in condition codes green/adequate/1 (GA1), amber/substandard/2 (AS2) or red/inadequate/3 (RI3). Provide information for buildings that are vacant and occupied.

Table 4: Condition of Munitions Production Facilities				
FAC	**Definition**	**#KSF in green/adequate/1**	**#KSF in amber/substandard/2**	**#KSF in red/inadequate/3**
1492	Explosives holding/transfer area			
1493	Explosives railway holding yard			
1494	Explosives handling/transfer area			
1497	Explosive ordnance disposal area			
2121	Missile maintenance/assembly			

Table 4: Condition of Munitions Production Facilities				
FAC	**Definition**	**#KSF in green/adequate/1**	**#KSF in amber/substandard/2**	**#KSF in red/inadequate/3**
	building			
2125	Missile maintenance/assembly building, depot			
2221	Missile production plant			
2251	Weapon production plant			
2252	Weapon production facility			
2261	Ammunition production plant			
2262	Ammunition production facility			
4211	Ammunition storage, depot and arsenal			
4221	Ammunition storage, installation			
8923	Vehicle scales			

6. **Existing Question DoD #198:** What are the total buildable acres at your facility?

7. **New Question:** In number of square feet, what is your unutilized plant capacity/unassigned munitions manufacturing space?

8. **New Question:** Which munitions explosive processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 1)

Table 1: Munitions Explosive Production Processes	**Last 2 Yrs**
1. Explosive and/or propellant cold cast cure to include vacuum casting and/or injecting capability.	
2. Melt pour, to include metal parts pre-conditioning and post pour controlled cooling	
3. Precision explosive pressing, to include explosive billet machining and sufficient tonnage and press daylight clearance for missiles.	
4. Extrusion of explosives and propellants.	
5. Kinetic energy munitions precision weigh and fill of propellant.	
6. Loaded components and initiating devices (primers, delays, relays, detonators) to include drying, blending, and handling equipmentthat precludes direct personnel exposure.	
7. Infrared decoy flare pressing and/or extrusion	
8. Smoke munitions mixing and pressing.	

9. Nitration of cotton linters or wood pulp.	
10. Nitration of hexamine.	
11. Manufacture of nitrate Esters.	

9. **New Question:** Which munitions metal parts processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 2)

Table 2: Munitions Metal Parts	**Last 2 Yrs**
1. Deep draw steel cartridge cases	
2. Grenade cargo metal parts	
3. Projectile forging, heat treat, and machining	
4. High frag projectile metal parts to include large caliber forging (1000 ton presses), heat treat, ultrasonic and machining.	

10. **New Question:** Which munitions load, assemble, and pack (LAP) processes did you perform within the last two (2) years (FY 02 – FY 03)? (Use Table 3)

Table 3: Munitions Load, Assemble, and Pack (LAP)	**Last 2 Yrs**
1. Navy gun ammo	
2. Mortar ammo	
3. Mine and Obstacle Clearing Charges	
4. Artillery ammo	
5. Tank ammo	
6. Missile warhead	
7. Medium caliber ammo	
8. Demolition	
9. Rockets	
10. Small caliber ammo	
11. Bomb body	
12. Grenades	
13. Missiles	
14. Torpedo	
15. CAD/PAD	
16. Propelling Charges	
17. Kinetic energy munitions	
18. Flares	

11. **Existing Question DoD #521:** What is your maximum munitions production capacity?

12. **New Question:** What is the annual cost required for your munitions manufacturing facility to open the doors? Use data as of 30 Sep 03 and provide the information in thousands of dollars. (Include equipment maintenance, facilities maintenance,

utilities, installation management, environmental compliance, environmental conservation, fire protection, safety, law enforcement, security guards, pest control, and snow/ice removal costs only.)

13. **New Question:** What are the number of civilian government employees supporting munitions production and the size of payroll? Use data as of 30 Sep 03.

14. **New Question:** What are the number of contractor employees supporting munitions production and the size of payroll? Use data as of 30 Sep 03.

15. **New Question:** Have you inspected, tested and performed maintenance and repair for the munitions items listed in Table 5 in the last two (2) years (FY 02 – FY 03)?

Table 5: Munitions Maintenance Commodities

	Last 2 Yrs		**Last 2 Yrs**
1. Sea Sparrow Missile		19. Patriot	
2. AMRAAM		20. MLRS	
3. Harpoon Missile		21. 76mm Naval Gun Ammunition	
4. HARM Missile		22. 5” Navy Gun Propelling Charges	
5. Hellfire Missile		23. 5” Navy Gun Projectiles	
6. Maverick Missile		24. Naval Mines	
7. Penguin Missile		25. Air Launched Cruise Missile (ALCM	
8. Phoenix Missile		26. Conventional Air Launched Cruise Missile (CALCM)	
9. Rolling Airframe Missile		27. Advanced Cruise Missile (ACM)	
10. Sidewinder Missile		28. Air to Air Cruise Missile (ATACM)	
11. Sidearm Missile		29. Other Air-to-Ground Missiles/Components	
12. Shrike Missile		30. Other Guided Munitions	
13. Hawk Surface-to-Air Missile		31. Unguided Munitions	
14. Walleye Missile		32. Cluster Munitions	
15. SLAM-ER Missile		33. AIM-9X Missile	
16. Tomahawk Missile		34. AIM-7 Sparrow Missile	
17. Torpedoes		35. Standard Missile	

18. Other Air Intercept Missile/Components			

16. **Existing Question DoD #521:** What is your maximum munitions maintenance capacity?

17. **New Question:** For the type of facilities identified in Table 6, enter floor areas in thousand square feet (KSF) for buildings in condition codes green/adequate/1 (GA1), amber/substandard/2 (AS2) or red/inadequate/3 (RI3). Provide information for buildings that are vacant and occupied.

Table 6: Condition of Munitions Maintenance Facilities

FAC	Definition	#KSF in green/adequate/1	#KSF in amber/substandard/2	#KSF in red/inadequate/3
1492	Explosives holding/transfer area			
1493	Explosives railway holding yard			
1494	Explosives handling/transfer area			
1497	Explosive ordnance disposal area			
2121	Missile maintenance/assembly building			
2125	Missile maintenance/assembly building, depot			
2221	Missile production plant			
2251	Weapon production plant			
2252	Weapon production facility			
2261	Ammunition production plant			
2262	Ammunition production facility			
4211	Ammunition storage, depot and arsenal			
4221	Ammunition storage, installation			
8923	Vehicle scales			

18. **Existing Question DoD #198:** What are the total buildable acres at your facility?

19. **New Question:** In number of square feet, what is your unutilized plant capacity/unassigned maintenance space?

20. **New Question:** Have you inspected, tested and performed maintenance and repair for the munitions items listed in Table 5 in the last two (2) years (FY 02 – FY 03)?

Table 5: Munitions Maintenance Commodities

	Last 2 Yrs		**Last 2 Yrs**
1. Sea Sparrow Missile		19. Patriot	
2. AMRAAM		20. MLRS	
3. Harpoon Missile		21. 76mm Naval Gun Ammunition	
4. HARM Missile		22. 5” Navy Gun Propelling Charges	
5. Hellfire Missile		23. 5” Navy Gun Projectiles	
6. Maverick Missile		24. Naval Mines	
7. Penguin Missile		25. Air Launched Cruise Missile (ALCM	
8. Phoenix Missile		26. Conventional Air Launched Cruise Missile (CALCM)	
9. Rolling Airframe Missile		27. Advanced Cruise Missile (ACM)	
10. Sidewinder Missile		28. Air to Air Cruise Missile (ATACM)	
11. Sidearm Missile		29. Other Air-to-Ground Missiles/Components	
12. Shrike Missile		30. Other Guided Munitions	
13. Hawk Surface-to-Air Missile		31. Unguided Munitions	
14. Walleye Missile		32. Cluster Munitions	
15. SLAM-ER Missile		33. AIM-9X Missile	
16. Tomahawk Missile		34. AIM-7 Sparrow Missile	
17. Torpedoes		35. Standard Missile	
18. Other Air Intercept Missile/Components			

21. **Existing Question DoD #520:** What is your maximum munitions maintenance capacity?

22. **New Question:** What is the annual cost required for your munitions maintenance facility to open the doors? Use data as of 30 Sep 03 and provide the information in

thousands of dollars. (Include equipment maintenance, facilities maintenance, utilities, installation management, environmental compliance, environmental conservation, fire protection, safety, law enforcement, security guards, pest control, and snow/ice removal costs only.)

23. **New Question:** What are the number of civilian government employees supporting munitions maintenance and the size of payroll? Use data as of 30 Sep 03.

24. **New Question:** What are the number of contractor employees supporting munitions maintenance and the size of payroll? Use data as of 30 Sep 03.

25. **New Question::** If you are a wholesale and force sustainment installation with explosive sited magazines used for distribution and storage in support of warfighter efforts, identify your usable square footage and Net Explosive Weight (NEW) of Class 1.1 explosives for the facilities identified in Table 7.

Table 7: Munitions Storage Capacity		
	Sq Ft	**NEW**
Explosive Earth Covered (> 20 X 40)		
Explosive Above Ground		
Other Explosive Storage		

26. **New Question:** What is the MAXIMUM number of Twenty-foot Equivalent Unit (TEU) containers of munitions you can outload per day?

27. **New Question:** What is the MAXIMUM number of short tons (STONS) of munitions you can outload per day?

28. **New Question:** Following receipt of a munitions requirement from a customer, what is the transit time to get munitions to the nearest air and seaport distribution hub via road and rail? Using Table 8, answer question in hours (to 2 decimal places).

Table 8: Munitions Distribution Time		
	Sea	Air
Rail		
Road		

29 **New Question:** For the type of facilities identified in Table 9, enter floor areas in thousand square feet (KSF) for buildings in condition codes green/adequate/1 (GA1), amber/substandard/2 (AS2) or red/inadequate/3 (RI3). Provide information for buildings that are vacant and occupied.

Table 9: Condition of Munitions Storage Facilities				
FAC	**Definition**	**#KSF in green/adequate/1**	**#KSF in amber/substandard/2**	**#KSF in red/inadequate/3**

Table 9: Condition of Munitions Storage Facilities				
FAC	**Definition**	**#KSF in green/adequate/1**	**#KSF in amber/substandard/2**	**#KSF in red/inadequate/3**
1492	Explosives holding/transfer area			
1493	Explosives railway holding yard			
1494	Explosives handling/transfer area			
1497	Explosive ordnance disposal area			
4211	Ammunition storage, depot and arsenal			
4221	Ammunition storage, installation			
8923	Vehicle scales			

30. **Existing Question DoD #198:** What are the total buildable acres at your facility?

31. **New Question:** In number of square feet, what is your unutilized plant capacity/unassigned munitions storage space?

32. New Question**:** If you are a wholesale and force sustainment installation with explosive sited magazines used for distribution and storage in support of warfighter efforts, identify your usable square footage and Net Explosive Weight (NEW) of Class 1.1 explosives for the facilities identified in Table 7.

Table 7: Munitions Storage Capacity		
	Sq Ft	**NEW**
Explosive Earth Covered (> 20 X 40)		
Explosive Above Ground		
Other Explosive Storage		

33. **New Question:** What is the MAXIMUM number of Twenty-foot Equivalent Unit (TEU) containers of munitions you can outload per day?

34. **New Question:** What is the MAXIMUM number of short tons (STONS) of munitions you can outload per day?

35. **New Question:** Following receipt of a munitions requirement from a customer, what is the transit time to get munitions to the nearest air and seaport distribution

hub via road and rail? Using Table 8, answer question in hours (to 2 decimal places).

Table 8: Munitions Distribution Time		
	Sea	Air
Rail		
Road		

36. **New Question:** What is the annual cost required for your munitions storage facilities to open the doors? Use data as of 30 Sep 03 and provide the information in thousands of dollars. (Include equipment maintenance, facilities maintenance, utilities, installation management, environmental compliance, environmental conservation, fire protection, safety, law enforcement, security guards, pest control, and snow/ice removal costs only.)

37. **New Question:** What are the number of civilian government employees supporting munitions storage and distribution and the size of payroll? ? Use data as of 30 Sep 03.38. **New Question:** What are the number of contractor employees supporting munitions storage and distribution and the size of payroll? Use data as of 30 Sep 03.

39. **New Question:** By method and class, identify the munitions demilitarization processes you performed in the last two (2) years (FY 02 – FY 03) and provide your maximum munitions demilitarization capacity for each process and class performed? Answer this question only if you have a permit. (Use Table 10)

Table 10: Munitions Demilitarization Processes										
MIDAS CLASSES	**METHOD OF DEMIL**									
	OBOD		**Meltout**		**Washout**		**Incinerate**		**Reclamation**	
	ea	stons	ea	stons	ea	stons	ea	stons	ea	stons
CD: Dyes										
CP: White Phosphorus										
CR: Riot Control										
CS: Smokes, HC, Colored, FS, RP										
DU: Depleted Uranium										
FI: Incendiary, Thermite										
FP: Pyrotechnics										
HA: High Explosive (HE) Components, Chrg Devices										
HB: HE Bombs										
HC: HE Cartridges										

HD:HE "D"										
HE: Bulk HE										
HG:HE Grenades										
HH: HE Depth Chrg, Under Water Munitions										
HI: HE ICM/BU and Submunitions										
HM: Missiles										
HP: He Projectiles and Warheads										
HR: He Rockets										
HT: Torpedoes										
HX: Demolition Material										
HZ: HE Land Mines										
I: Inert										
LR: Large Rocket Motor										
N: No Family										
PB: Bulk Propellant and Black Powder										
PC: Propellant Charges										
PD: Propellant Munitions and Components										
SA: Small Caliber Ammunition										
SC: Incinerable Munitions and Components										
SF: Fuzes										
TM: Tactical Missiles										

40. **New Question:** For the type of facilities identified in Table 11, enter floor areas in thousand square feet (KSF) for buildings in condition codes green/adequate/1 (GA1), amber/substandard/2 (AS2) or red/inadequate/3 (RI3). Provide information for buildings that are vacant and occupied.

Table 11: Condition of Munitions Demilitarization Facilities

FAC	Definition	#KSF in green/adequate/1	#KSF in amber/substandard/2	#KSF in red/inadequate/3
1492	Explosives holding/transfer area			
1493	Explosives railway holding yard			
1494	Explosives handling/transfer area			

Table 11: Condition of Munitions Demilitarization Facilities				
FAC	**Definition**	**#KSF in green/adequate/1**	**#KSF in amber/substandard/2**	**#KSF in red/inadequate/3**
1497	Explosive ordnance disposal area			
2264	Ammunition demilitarization plant			
2265	Ammunition demilitarization facility			
4211	Ammunition storage, depot and arsenal			
4221	Ammunition storage, installation			
8923	Vehicle scales			

41. **Existing Question DoD #198:** What are the total buildable acres at your facility

42. **New Question:** In number of square feet, what is your unutilized plant capacity/unassigned munitions demilitarization space?

43. **New Question:** By method and class, identify the munitions demilitarization processes you performed in the last two (2) years (FY 02 – FY 03) and provide your maximum munitions demilitarization capacity for each process and class performed? Answer this question only if you have a permit. (Use Table 10)

Table 10: Munitions Demilitarization Processes										
MIDAS CLASSES	**METHOD OF DEMIL**									
	OBOD		**Meltout**		**Washout**		**Incinerate**		**Reclamation**	
	ea	stons	ea	stons	ea	stons	ea	stons	ea	stons
CD: Dyes										
CP: White Phosphorus										
CR: Riot Control										
CS: Smokes, HC, Colored, FS, RP										
DU: Depleted Uranium										
FI: Incendiary, Thermite										
FP: Pyrotechnics										
HA: High Explosive (HE) Components, Chrg Devices										
HB: HE Bombs										
HC: HE Cartridges										
HD:HE “D”										
HE: Bulk HE										
HG:HE Grenades										

HH: HE Depth Chrg, Under Water Munitions										
HI: HE ICM/BU and Submunitions										
HM: Missiles										
HP: He Projectiles and Warheads										
HR: He Rockets										
HT: Torpedoes										
HX: Demolition Material										
HZ: HE Land Mines										
I: Inert										
LR: Large Rocket Motor										
N: No Family										
PB: Bulk Propellant and Black Powder										
PC: Propellant Charges										
PD: Propellant Munitions and Components										
SA: Small Caliber Ammunition										
SC: Incinerable Munitions and Components										
SF: Fuzes										
TM: Tactical Missiles										

44. **New Question:** What is the annual cost required for your munitions demilitarization facilities to open the doors? Use data as of 30 Sep 03 and provide the information in thousands of dollars. (Include equipment maintenance, facilities maintenance, utilities, installation management, environmental compliance, environmental conservation, fire protection, safety, law enforcement, security guards, pest control, and snow/ice removal costs only.)

45. **New Question:** What are the number of civilian government employees supporting munitions demilitarization and the size of payroll? Use data as of 30 Sep 03.

46. **New Question:** What are the number of contractor employees supporting munitions demilitarization and the size of payroll? Use data as of 30 Sep 03.

47. **New Question:** What armaments manufacturing/production processes did you perform in the last two (2) years (FY 02 – FY 03)? (Use Table 12)

Table 12: Armaments Manufacturing/Production Processes	**Last 2 Yrs**
1. All-angle simulation of vehicle mounted recoils/mounts	
2. Automated guided deep-hole boring (30' length min.)	
3. Chrome plating, internal (30' length min.)	
4. Computer Numerical Controlled (CNC) powder chamber grinding (30' length min.)	
5. Continuous heat-treat of large cylinders (30' length min.)	
6. Swage and autofrettage of large cylinders	
7. 7-axis machining	
8. Rotary forge of large cylinders (30' length min.)	
9. Computer assisted bore inspection and laser dimensional control	
10. Foundry (armor steel, ferrous, and non ferrous)	
11. Large structures/vehicles machining (x-y axis travel 10 ft per min)	
12. Simulation proof testing and gymnastication (cannon breech and mortar barrel assemblies	
13. Simulation proof testing and gymnastication (gun mounts and recoils up to 155mm	

48. **New Question:** Which of these armaments products has your site produced in the last two (2) years (FY 02 – FY 03)? Use "Other" (element number 11 in the table) if you produce a product that is not readily available in the commercial sector and not listed in the table. List only one. (Use table 13.)

Table 13: Armaments Manufacturing/Production Capacity	**Last 2 Yrs**
1. Artillery and tank cannon	
2. Artillery, towed and self-propelled repair/spare parts (carriage)	
3. Gun mounts (medium and large caliber)	
4. Mortars	
5. Recoil mechanisms	
6. Small arms gages	
7. Armored combat vehicles	
8. Aircraft Armament systems	
9. Gun Systems and related components	
10. Other Guided/Unguided Missile Armament Components	
11. Other	

49. **New Question:** For the type of facilities identified in Table 14, enter floor areas in thousand square feet (KSF) for buildings in condition codes green/adequate/1 (GA1),

amber/substandard/2 (AS2) or red/inadequate/3 (RI3). Provide information for buildings that are vacant and occupied.

Table 14: Condition of Armaments Manufacturing/Production Facilities				
FAC	**Definition**	**#KSF in green/adequate/1**	**#KSF in amber/substandard/2**	**#KSF in red/inadequate/3**
2121	Missile maintenance/assembly building			
2125	Missile maintenance/assembly building, depot			
2221	Missile production plant			
2251	Weapon production plant			
2252	Weapon production facility			
8923	Vehicle scales			

50. **Existing Question DoD #198:** What are the total buildable acres at your facility?

51. **New Question:** In number of square feet, what is your unutilized plant capacity/unassigned armaments manufacturing/production space?

52. **New Question:** Which armaments manufacturing/production processes did you perform in the last two (2) years (FY 02 – FY 03)? (Use Table 12)

Table 12: Armaments Manufacturing/Production Processes	**Last 2 Yrs**
1. All-angle simulation of vehicle mounted recoils/mounts	
2. Automated guided deep-hole boring (30' length min.)	
3. Chrome plating, internal (30' length min.)	
4. Computer Numerical Controlled (CNC) powder chamber grinding (30' length min.)	
5. Continuous heat-treat of large cylinders (30' length min.)	
6. Swage and autofrettage of large cylinders	
7. 7-axis machining	
8. Rotary forge of large cylinders (30' length min.)	
9. Computer assisted bore inspection and laser dimensional control	
10. Foundry (armor steel, ferrous, and non ferrous)	
11. Large structures/vehicles machining (x-y axis travel 10 ft per min)	
12. Simulation proof testing and gymnastication (cannon breech and	

mortar barrel assemblies	
13. Simulation proof testing and gymnastication (gun mounts and recoils up to 155mm	

53. **New Question:** Which armaments products did you produce in the last two (2) years (FY 02 – FY 03)? Use "Other" (element number 11 in the table) if you produce a product that is not readily available in the commercial sector and not listed in the table. List only one. (Use Table 13)

Table 13: Armaments Manufacturing/Production Capacity	**Last 2 Yrs**
1. Artillery and tank cannon	
2. Artillery, towed and self-propelled repair/spare parts (carriage)	
3. Gun mounts (medium and large caliber)	
4. Mortars	
5. Recoil mechanisms	
6. Small arms gages	
7. Armored combat vehicles	
8. Aircraft Armament systems	
9. Gun Systems and related components	
10. Other Guided/Unguided Missile Armament Components	
11. Other	

54. **New Question:** What is the annual cost required for your armament manufacturing/production facility to open the doors? Use data as of 30 Sep 03 and provide the information in thousands of dollars. (Include equipment maintenance, facilities maintenance, utilities, installation management, environmental compliance, environmental conservation, fire protection, safety, law enforcement, security guards, pest control, and snow/ice removal costs only.)

55. **New Question:** What are the number of civilian government employees supporting armaments production and the size of payroll? Use data as of 30 Sep 03.

56. **New Question:** What are the number of contractor employees supporting armaments production and the size of payroll? Use data as of 30 Sep 03.

Depot Maintenance

1. DoD Capacity Data Call Question #506. For FY 03-FY04, for each commodity group performed, identify the Direct Labor Hours (DLHs) your depot maintenance activity produces.

2. New Question. For each commodity group performed, identify and list all of the different direct labor occupational series and number of personnel for each occupational series at your activity for FY03 through FY04. Do not include the different grades within an occupational series.

3. New Question. For your activity, what is the replacement value for the capital purchases program and what is the capital purchases program investment, in dollars for FY01 through FY04? Identify other contributed capital assets, in dollars for FY01 through FY04.

4. DoD Capacity Data Call Questions # 508 and #509. For each commodity group performed, what is the total number of DLHs produced that are identified as Last Source or Directed workload for FY03 through FY04?

5. New Question and DoD Capacity Data Call Question #506. For each commodity group performed, identify the total number of DLHs performed for FY03 through FY04 and the total number of interservice DLHs performed and for what Service (Army, Navy, Air Force, Marine Corps).

6. New Question. For each commodity group performed, does your depot maintenance activity have public-private partnership(s) that provide organic or commercial direct labor hours? The source is the most current OSD report on Public-Private Partnerships for Depot-Level Maintenance.

7. New Question. For each commodity group performed, list the operational units (Minimum - Squadron/Battalion) or Distribution Centers located on your installation that receive or provide support.

8. New Question. For each commodity group performed, is there an intermediate level maintenance activity that can receive or provide support for that commodity?

9. New Question. On your installation, are there buildable acres appropriately zoned for maintenance, as of the FY04 Appropriation Act?

10. New Question. For each commodity group performed, how many acres are unrestricted and appropriately zoned for maintenance use as of the FY04 Appropriation Act?

11. New Question. For each commodity group performed, based on the FY04 Appropriation Act, identify the FY04 space (in thousand of Square Feet - KSF) by building type and condition code (C-1 through C-4) for all maintenance facility activity codes (FAC) and service category code numbers (CCN). Note: Include only funded and approved MILCONs up to and including the FY04 Appropriation Act that will be completed and available in FY04.

12. New Question. For each commodity group performed, is maintenance or operational testing constrained by electromagnetic radiation and/or emissions, or are waivers required, as of end of 1st quarter FY04? Indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

13. New Question. For each commodity group performed, do noise restrictions or noise abatement procedures, or are waivers required, as of end of 1st quarter FY04, constrain maintenance or operational testing? Indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

14. New Question. For each commodity group performed, are there restrictions, other than electromagnetic radiation and/or emissions, noise restrictions/abatement procedures, or are waivers required, as of end of 1st quarter FY04, that restrict/constrain maintenance or operational testing? If there are other restrictions/constraints, indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

15. New Question and DoD Capacity Data Call Question #211. For each commodity group performed, during the performance of maintenance or operational testing, which commodity groups produce air emissions? (Note: emissions are identified in the table of DoD question #211). Answer Yes/No. List and describe any waivers due to expire between FY04 and FY09.

16. New Question and DoD Capacity Data Call Question #282. For each commodity group performed, during the performance of maintenance or operational testing, which commodity groups produce industrial wastewater? Answer Yes/No. List and describe any waivers due to expire between FY04 and FY09.

17. New Question and DoD Capacity Data Call Question #506. For each commodity group performed, how many defects were accepted and what are the direct labor hours (defects/total hours) for FY01 through FY03?

18. New Question. For each commodity group performed, list all of the different direct labor occupational series at your activity for FY04. Do not include the different grades within an occupational series.

19. New Question. Identify, by name, any accredited trade schools/colleges/ universities, within 50 miles distance from your activity, which provide training or trained personnel to support future maintenance workforce requirements; note any formal agreements.

20. New Question. For each maintenance activity, what is the name of and distance to the nearest Metropolitan Statistical Area (MSA), and what is the total employment listed within the MSA for the following two Major Standard Occupational Classification (SOC) Groups: 49-0000 Installation, Maintenance, and Repair Occupations and selected 51-0000 Production Occupations?

21. DoD Capacity Data Call Questions # 501 and #503. For each commodity group performed, what is the Maximum Capacity and the Total Capacity for each of the years FY03, FY04, FY05, and FY09?

22. DoD Capacity Data Call Question # 503. For each commodity group performed, what is the Maximum Capacity for the years FY03, FY04, FY05, and FY09?

23. DoD Capacity Data Call Questions # 501 and # 502. For each commodity group performed, what is the Total Capacity and the Required Capacity for each of the years FY03, FY04, FY05, and FY09?

24. DoD Capacity Data Call Questions # 501 and # 502. For each commodity group performed, what is the Available Capacity for the years FY03, FY04, FY05, and FY09?

25. New Question. For each commodity group performed, based on the FY04 Appropriation Act, identify the FY09 space (in thousand of Square Feet - KSF) by building type and condition code (C-1 through C-4) all maintenance facility activity codes (FAC) and service category code numbers (CCN). Report FY09 condition codes the same as the FY04 assessments, except for condition codes that will change due to funded and approved MILCONs projects up to and including the FY04 Appropriation Act that will be completed and available for use by FY09. Include the total number of square feet of building space by commodity that is to be made available within your maintenance activity.

26. New Question. List your installation's access to strategic transportation modes (e.g., RAIL- rail spur on installation, HIGHWAY- State or Federal interstate highways adjacent to installation, AIR- airports on installation, WATER - water terminal on installation). List the type of transportation modes found.

27. New Question and DoD Capacity Data Call Question #506. For each commodity group performed, what is your organization's cost per produced hour (Total Direct Labor Costs/Total Hours Produced) for FY01 through FY03.

28. New Question and DoD Capacity Data Call Question #506. For each commodity group performed, what are your organization's other production costs (All other cost (minus direct and indirect materiel) /Total Hours) for FY01 through FY03. (NOTE: Total Other Production Costs are defined as the recurring customer costs consisting of Production Expense (Indirect) PLUS General & Administration (G&A); reference the Defense Depot Maintenance Cost Comparability Handbook dtd January 1998 pages 14 and 16).

29. New Question. What is your direct labor attrition rate for FY00 through FY03?

For the Depot Maintenance questions above only the new questions will be asked during the military value data call.

Combat Field Support/Intermediate Maintenance

1. DoD Capacity Data Call Question #495 and #496. For each commodity group performed, list the total number of assigned personnel onboard and the total number of Direct Labor Hours (DLHs) for FY01-FY03.

2. DoD Capacity Data Call Question #496. For each commodity group performed, what is the total number of DLHs produced for each year FY01 to FY03?

3. New Question and DoD Capacity Data Call Question #496. For each commodity group performed, identify the total number of DLHs performed for FY01 through FY03 and the total number of interservice DLHs performed and for what Service.

4. New Question. For each commodity group performed, list the DoD customers (Minimum size- Squadron/Battalion) that are located on or within 50 miles of your activity and the number of DLHs for each customer for FY01- FY03.
5. New Question. For each commodity group performed, is your intermediate maintenance activity located on or within 50 miles of a depot that accomplishes like commodity work?

6. New Question. On your installation, are there buildable acres appropriately zoned for maintenance, as of the FY04 Appropriation Act?

7. New Question. For each commodity group performed, how many acres are unrestricted and appropriately zoned for maintenance use as of the FY04 Appropriation Act?

8. New Question. For each commodity group performed, based on the FY04 Appropriation Act, identify the FY04 space (in thousand of Square Feet - KSF) by building type and condition code (C-1 through C-4) for all maintenance facility activity codes (FAC) and service category code numbers (CCN). Note: Include only funded and approved MILCONs up to and including the FY04 Appropriation Act that will be completed and available in FY04.
9. New Question. For each commodity group performed, is maintenance or operational testing constrained by electromagnetic radiation and/or emissions, or are waivers required, as of end of 1st quarter FY04? Indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

10. New Question. For each commodity group performed, do noise restrictions or noise abatement procedures, or are waivers required, as of end of 1st quarter FY04, constrain maintenance or operational testing? Indicate which

commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

11. New Question. For each commodity group performed, are there restrictions, other than electromagnetic radiation and/or emissions, noise restrictions/abatement procedures, or are waivers required, as of end of 1st quarter FY04, that restrict/constrain maintenance or operational testing? If there are other restrictions/constraints, indicate which commodity groups are affected by answering yes. List and describe each restriction or waiver and expiration date.

12. New Question. For each commodity group performed, during the performance of maintenance or operational testing, which commodity groups produce air emissions? (Note: emissions are identified in Table of DoD question #211). Answer Yes/No. List and describe any waivers due to expire between FY04 and FY09.

13. New Question. For each commodity group performed, during the performance of maintenance or operational testing, which commodity groups produce industrial wastewater? Answer Yes/No. List and describe any waivers due to expire between FY04 and FY09.

14. New Question and DoD Capacity Data Call Question #495. For each commodity group performed, what is the number of intermediate maintenance personnel assigned and what are the total non-deployable intermediate maintenance personnel assigned?

15. New Question. Identify, by name, any accredited trade schools/colleges/universities, within 50 miles distance from your activity, which provide training or trained personnel to support future maintenance workforce requirements; note any formal agreements.

16. New Question. For each maintenance activity, what is the name of and distance to the nearest Metropolitan Statistical Area (MSA), and what is the total employment listed within the MSA for the following two Major Standard Occupational Classification (SOC) Groups: 49-0000 Installation, Maintenance, and Repair Occupations and selected 51-0000 Production Occupations?

17. For DoD Capacity Data Call Questions #495 and #496 each commodity group performed, list the average total number of assigned personnel onboard and the average total number of man hours for FY01-FY03.

For the Combat Field Support/Intermediate questions above only the new questions will be asked during the military value data call.

Ship Overhaul and Repair

New Questions:

1. **Question:** For ship maintenance activities, how many fleet units are home-ported at your installation and within 50 miles? Identify those ship classes receiving maintenance from your activity; identify the number of each type of maintenance event?

Note: Number of ship class receiving maintenance is the number served regardless of homeport. Installations should measure the distance to other installations using http://dtod1.mtmc.army.mil/. Distances should be one-way. Do not include ships accounted for in the homeport column in the within 50 mi column.

	Fleet units home ported at installation	Fleet units within 50 mi	Number of each ship class receiving maintenance from your installation in FY 99-03	COH	RCOH	DSRA	EDSRA	DPIA	PIA	POM	RAV	CN	INACT	DRAV	ERP	ROH	EOH	DMP	DPMA	PMA	SRA	Other
CVN																						
CV																						
CG																						
DDG																						
DD																						
FFG																						
LHD																						
LHA																						
LPD																						
LSD																						
AOE																						
MCM																						
MHC																						
PC																						
SSN																						
SSBN																						

MSC Vessels																						
Army Vessels																						
Other Agency Vessels																						

2. For ship maintenance activities identify the name of DoD installations within 350 mi of your installation that have depot or intermediate maintenance capability**.**

Note: Installations should measure the distance to other installations using http://dtod1.mtmc.army.mil/. Distances should be one-way. Include only installations not activities within a fence-line.

Installation name	Distance	Depot (Yes/No)	Intermediate (Yes/No)

3. For ship maintenance activities, what non-DoD ship support maintenance capabilities/companies has your activity contracted with or concluded an agreement for maintenance services?

Note: Installations should measure the distance to other installations from main gate to main gate using http://dtod1.mtmc.army.mil/. Contract/agreements include ISSA, MOA, MOU, etc. For Total $ Value, answer in FY 03 dollars that are expended on the end item, for FY99 through FY03. Number of contracts equals Delivery Orders and contracts awarded.

Contractor Name	End Product (Service /item)	Distance	Number of contracts/ agreements in FY 99	Number of contracts/ agreements in FY 00	Number of contracts/ agreements in FY 01	Number of contracts/ agreements in FY 02	Number of contracts/ agreements in FY 03	Total $ (K) value

4. For ship maintenance activities, has your Ship maintenance activity been designated as having a specialized capability/skill or certification?

Note: The third column is to capture capabilities, skills, or certifications that have been used in the last two years (FY 02/FY03). Use column four only for description of other items listed by activity.

Item	Have capacity/ skill Y/N	Has it been used in the last two years Y/N	Other item description
Authority to perform Naval Nuclear Propulsion work			
Nuclear-powered ship reactor refueling capability and facilities			
Qualifications to perform Submarine Safety (SUBSAFE) work			
Ship Class Engineering and Planning Yard function			
Thermal arc flame spray			
Capacity to install and service helicopter recovery systems aboard ship			
Perform submarine mast and antenna repair			
Perform surface ship antenna repair			
Dive unit qualified for water-borne propeller replacement, hydrophone repair, anchor repair			
Capacity to do weight tests using water bags			
Specialized experience in advanced technologies in Deep Ocean submergence platforms			
Lathe, turret, cnc			
Lathe, engine shaft			
Lathe, boring –			

propeller shafts			
Furnace, Carbon Arc			
Cutting machine, gas – Cutting steel plate into structural shapes			
Furnace, Heat treating – heat treating/stress relieving large forgings			
Mill, boring & turning – Machining of large mechanical components			
Balancing machine – balancing large work pieces (propellers)			
Cutting machine, NC, flame/plasma – cutting structural shapes from metal plate			
Oven, vacuum drying – rapid drying of large electrical components (motors, gens)			
Decarburization system – remove carbon from molten steel			
Machine center, turning			
Furnace, heat treating, car type – heat treating/stress relieving large propellers			
Battery charger, submarine			
Mill, boring horizontal, CNC			
Grinder, cylindrical – precision grinding			
Honing machine, horizontal – 32” dia to 25’ long			
Press, forging			
Thermal spray/blast system – coatings to machinery parts			
Furnace system –			

induction melting of metal for casting various components			
Welder, robotic			
Machining Center, CNC – large mechanical components			
Radiography Imaging system – radiography QA inspection of foundry castings			
Laser cutting machine, CNC			
Milling Machine, CNC – Mfg wooden patterns for foundry casting molds			
Mould conveyors – continuous casting of steel ingots			
Periscope Repair & Test Facility			
Auto propeller opt. Measurement syst – laser measurement of ship's propellers			
Plasma/oxy cutting table, numerical control			
Punching Machine, metal, turret type			
Acoustical Test Facility – testing of transducers and hydrophones			
Fatigue Test Tank Facility – Cyclical hydrostatic pressure testing of hull models and matl			
Computer systems			
Engineering Data Management Info and Control System			
Boring Vertical MIL			
Lathe, hollow spindle			
Shaft Lathe			
Lathe, boring, single end			
Fastener workstation 6-axis CNC mill – turn center			

Gyro test station			
CNC Horizontal Multi-tool/ Program Center			
Large 14” Pipe Bender			
CNC Pipe Tee/ Branch Extrusion/ Cutting Center			
Industrial Laboratory (Material Testing)			
Antenna Range			
5 axis Horizontal Machining Centers			
Other 1			
Other 2			
Other 3			
Other 4			
Other 5			
Other 6			
Other 7			
Other 8			
Other 9			
Other 10			

5. For ship maintenance activities, has your ship repair activity been designated by a service or government agency as the last source for any ship type/ product? If so, identify the number of DLHs used to produce that product and if a specialized capability is required.

Product	Service/ Agency designating activity as last source	Total DLH used to produce FY 99	Total DLH used to produce FY 00	Total DLH used to produce FY 01	Total DLH used to produce FY 02	Total DLH used to produce FY 03	Special capability required (Y/N)

6. For Naval shipyards, for all shops provide your most current work force summary broken out in the categories below.

Note: Shops are defined as employees working in the following commodity groups: Heavy Fabrication, Foundry, Forge, Sheet Metal, Welding, Inside Machine, Marine (Outside) Machine, Boiler, Electrical, Piping, Wood Crafting, Shipwright, Electronics, Paint, Cranes & Rigging, Services, Tool Manufacture, Optical Instruments, Plastic Fabrication, Air Condition & Refrigeration, Environmental and Safety, Hazardous Material, Nuclear Engineering & Planning, Radiological Engineering and Health, Radiological Monitoring and Support, Nuclear Quality Assurance, Nuclear Project Management, Business Support, Nuclear Testing, Non-Nuclear Engineering & Planning, Non-Nuclear Quality Assurance, Non-Nuclear Project Management, Non-Nuclear Testing, Calibration.

First Line Supervisors	Journeymen	Apprentices

7. For Naval shipyards, how many hours of training were expended on the job, and how many dollars were provided to personnel for training during the listed fiscal years?

Note: Cost for apprentice program (row 1) should not be included in continuing education program (row 2).

	FY-02	FY-03
Funds expended for the apprenticeship program		
Funds expended to compensate workforce for continuing education, technical schools, maintenance of certifications, and college degreed programs.		
How many hours of training does you activity provide to each workforce employee for training or continuing education in support of maintaining trade skill technical experience for the listed years?		
Number of employees enrolled in training or continuing education in support of maintaining trade skill technical experience for the listed years?		
Number of apprentices enrolled in program each year.		
Number of apprentices that graduate each year.		
What percent of apprentices qualify for journeyman at the end of their apprenticeship for the listed years below?		

8. For ship maintenance activities, list the following structural characteristics of each graving dry dock at your facility. Do not include non-operational dry docks.

Note: Assume 4-6-feet high standard blocking. Indicate if floatation assistance is required by including an asterisk in column 3 after ship class. Condition code provided by iNFADS (Navy Facility Asset Database System).

Dry-dock number	Condition code	Largest ship class that dry-dock can accommodate	Number of portal and fixed cranes serving dry-dock	Maximum crane lifting capacity at the dry-dock (tons)	Nuclear certified

9. For ship maintenance activities, provide the following information for each identified shop.

Shop	Maximum length of equipment that can be worked on	Maximum volume of equipment that can be worked on	Maximum wt of equipment that can be worked
Machine shop			
Heavy fabrication			
Welding			
Electrical			
Shipwright			
Optical instruments			
Foundry			
Forge			
Sheet metal			
Piping			
Paint			

10. For ship maintenance activities, for each pier or wharf provide the following at your installation.

Pier/wharf Name	Number of portal and fixed cranes serving pier/wharf	Max lift capacity at pier / wharf

11. For Naval shipyards, report the name and distance to the nearest Metropolitan Statistical Area (MSA), and report the total employment within the MSA in the following two Major Standard Occupational Classification (SOC) Groups:

49-0000 Installation, Maintenance, and Repair Occupations
51-0000 Production Occupations, excluding the following occupations Bakers; Butchers and Meat Cutters; Meat, Poultry, and Fish Cutters and Trimmers; Slaughterers and Meat Packers; Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders; Food Batchmakers; Food Cooking Machine Operators and Tenders; Laundry and Dry-Cleaning Workers; Pressers, Textile, Garment, and Related Materials; Sewing Machine Operators; Shoe and Leather Workers and Repairers; Shoe Machine Operators and Tenders; Sewers, Hand; Tailors, Dressmakers, and Custom Sewers; Textile Bleaching and Dyeing Machine Operators and Tenders; Textile Cutting Machine Setters, Operators, and Tenders ; Textile Knitting and Weaving Machine Setters, Operators, and Tenders; Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders; Fabric and Apparel Patternmakers ; Upholsterers; Furniture Finishers; Dental Laboratory Technicians; Medical Appliance Technicians; Ophthalmic Laboratory Technicians

Note: (MSA employment data is available via the Bureau of Labor Statistics at http://www.bls.gov/oes/2002/oessrcma.htm).

Metropolitan Statistical Area (name)	Distance (miles)	Total employment 49-0000	Total employment 51-0000

12. For ship maintenance activities, what is your activity's total operating cost (less material) for FY 03 and FY 04 (budgeted)?

	FY 03 (K) $	FY 04 (Budgeted) (K) $
Total operating cost		

13. For Naval shipyards, please provide the total number DLHs used and the total number of budgeted DLHs in the following maintenance events completed for the fiscal years FY 99, FY 00, FY 01, FY 02, FY 03, and FY 04.

	COH	RCOH	DSRA	EDSRA	DPIA	PIA	POM	RAV	CN	INACT	DRAV	ERP	ROH	EOH	DMP	DPMA	PMA	SRA	Other
Total number of budgeted DLH per maintenance event in FY 99																			
Total number of actual DLH used per maintenance event in FY 99																			
Total number of budgeted DLH per maintenance event in FY 00																			
Total number of actual DLH used per maintenance event in FY 00																			
Total number of budgeted DLH per maintenance event in FY 01																			
Total number of actual DLH used per maintenance event in FY 01																			

Total number of budgeted DLH per maintenance event in FY 02																			
Total number of actual DLH used per maintenance event in FY 02																			
Total number of budgeted DLH per maintenance event in FY 03																			
Total number of actual DLH used per maintenance event in FY 03																			
Total number of budgeted DLH per maintenance event in FY 04																			
Total number of actual DLH used per maintenance event in FY 04																			

14. For ship intermediate maintenance activities identify any DoD activities, which are co-located with the activity that provides non-maintenance type support to fleet units under-going maintenance.

Support	Y/N
Berthing	
Navy schools	
Magazines	

15. For ship intermediate maintenance activities, identify your organization's ability to provide ship overhaul and repair capability to units at other area bases, forward sites, or overseas.

Note: Function includes CASREP response, SRA, underway testing, etc. This does not include any part of the activity which is designated to regularly deploy.

Function	Location	DLH TAD for maintenance in FY 03	Total workload in DLH for FY 03

16. For ship intermediate maintenance activity, has your IMA facility done intra-/inter-service or inter-agency work in FY03?

Service/agency	Product	

17. For ship intermediate maintenance activities, list NECs assigned to this IMA activity.

Note: EDVR is Enlisted Distribution and Verification Report, NEC is Navy Enlisted Classification Code and reference document for NEC is MILPERSMAN 1221-010

NEC	NECs Required by EDVR for FY 04	NECs Assigned for FY 04	Projected NECs number required for FY 05	Projected NECs assigned in FY 05

18. For ship intermediate maintenance activities, list the learning institutions (community colleges, universities, technical schools), both brick and mortar as well as on-line, for which Sailors have used tuition assistance, or similar DoD sponsored programs. Provide the number of Sailors attending each institution for the following fiscal years FY 03 and FY 04.

Institution	Number of Sailors attending in FY 03	Number of Sailors attending in FY 04

19. For ship intermediate maintenance activities, list the number of billets authorized and personnel assigned for pay-grades 0-6 through E-1 for FY 04 and FY 05.

Billets	Actual number assigned for FY 04	FY 04 authorized by ODVR/EDVR	FY 05 authorized by ODVR/EDVR	FY 05 projected assigned
O-6				
thru				
E-1				

20. **Question:** For ship intermediate activity, what funded and in-progress investments in Type I and II plant property and Type IV are occurring at this IMA?

Note: Only include projects funded through FY 04 Armed Services Appropriations Act.

Project	New capability	IOC date	Give specialized capability (Y/N)	$ Value

21. For ship intermediate maintenance activities, what were the IMA FY 03 TAD costs for training maintenance personnel required maintenance qualifications, NECs, and maintenance certifications?

22. For ship intermediate maintenance activities, what is the total estimated replacement value of the equipment and buildings for this IMA?

23. For ship intermediate maintenance activities, what were your activity's annual Real Property Maintenance (RPM) expenses (in $K) for FY 99-03?

	FY 99	FY 00	FY 01	FY 02	FY 03
Real Property Maintenance expenses $(K)					

Existing Questions:

24. Existing Questions from Data Call #1: 199, 200, 201, 215, 218, 219, 238, 241, 245, 249, 250, 252, 254, 256, 257, 259, 260, 261, 263, 264, and 284. How many constraints by environmental issues, does your facility have with respect to how your activity conducts operations in FY 03?

25. Existing Questions from Data Call #1: 11, 612, and 613. What piers and wharves does your activity have and what are their capacities and capabilities?

26. Existing Question from Data Call #1: 211. What are your activity's air pollution emitted amounts and the permitted amounts?

27. Existing Question from Data Call #1: 621. What is your activity's high-voltage electrical off-base daily capacity less the normal steady-state daily load?

Section 4: Issues Impacting Analysis

Each of the subgroups has identified two specific sections of title 10 United States Code as potentially having significant impact on the overall BRAC analysis; title 10 USC §2464 (commonly referred to as the "Core Law") and 10 USC §2466 (commonly referred to as the "50/50 Law"). Each of these sections impact the demand, or requirement side of capacity and potentially impacts our determination of "available capacity."

Title 10 USC §2464 requires that DoD maintain a core logistics capability that is Government-owned and Government-operated (including Government personnel and Government-owned and Government-operated, equipment, and facilities) to ensure a ready and controlled source of technical competence and resources necessary to ensure effective and timely response to a mobilization, national defense contingency situations, and other emergency requirements.

Title 10 USC §2466 requires that not more than 50 percent of the funds made available in a fiscal year to a military department or a Defense Agency for depot-level maintenance and repair workload may be used to contract for the performance by non-Federal Government personnel of such workload for the Military Department or the Defense Agency. Any such funds that are not used for such a contract shall be used for the performance of depot-level maintenance and repair workload by employees of the Department of Defense. The Secretary of Defense may waive the limitation for a fiscal year for reasons of national security. In this case the Secretary must submit a notification to Congress with the reasons for a waiver. Also, the Secretary may not delegate the authority for a waiver.

It is recognized that these statutes do not hinder an unconstrained military value analysis. It is possible that they will impact scenario development and should be addressed at that time