The Submarine Capital of the World

The Case for
Naval Submarine Base New London
(SUBASE NLON)

"The First and Finest"

Supplemental Data Submission

July 18, 2005

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The Case for New London: Supplemental Data Submission
Executive Summary

At the Boston regional hearing on July 6, 2005, the State of Connecticut presented the case for SUBASE New London before the BRAC Commission. The State panel, which included elected officials and subject matter experts, presented the Commission with strategic arguments for removing SUBASE New London from the closure list along with numerous substantial deviations from the BRAC selection criteria. This document supplements the information presented at the hearing and provides additional detail on substantial deviations by the Department of Defense (DoD) in its evaluation.

The data is presented in the order of the eight criteria, as it was on July 6. For easy reference, we have included a copy of the July 6 Connecticut briefing in the inside front pocket.

Military value Criteria 1-3 are covered first. This section contains a supplemental statement by John Markowicz to his July 6 testimony, with the following attachments: (1) further rationale for questioning DoD's determination of military value, and (2) a Talking Paper from the BRAC Red Team raising questions about military value evaluation and pointing out weaknesses in the DoD analytical process. The materials all support the claim that measurements were inconsistent and inaccurate. The additional data amplifies the case that flaws in military value evaluation led to the systematic undervaluing of SUBASE New London.

The next section, on Criteria 4-5, provides the Commission with additional detail on understated costs, overstated savings and ignored expenses related to the proposed closure of SUBASE New London. COBRA runs for the Navy's proposal (DON-0033B) and three additional Connecticut corrected COBRA runs are included. For the reasons explained prior to each additional COBRA run, the Connecticut versions show the payback year extending from the Navy's 2014 to 2041 in Connecticut #1, 2057 in Connecticut #2, and to no payback in Connecticut #3. The latter COBRA analysis takes into account increased new construction costs for Electric Boat resulting from SUBASE New London closure, estimated at $50 million per year.

Finally, the section on Criteria 4-5 includes an examination by Connecticut of the assumptions underlying the Navy's examination of the scenario (DON-0004) evaluating the potential savings of moving 11 attack submarines from Norfolk to New London. The revised scenarios include elimination of one-time military construction cost of $93 million for a new drydock at New London. The Navy overlooked the availability of a graving dock at nearby Electric Boat, currently under repair. Other revisions include the elimination of certain billets at Norfolk, to reflect the relocation of the SSNs. These revisions show 2025 savings ranging from $55 million in Revision 1 to $230 million in Revision 2.

Only the COBRA summaries are provided in hard copy to save space. The full data runs are included on the accompanying CD.

Substantial deviations from Criteria 6-7 are supported in the next section with facts and white papers developed by the Connecticut Department of Economic Development showing DoD's failure to properly

account for (i) the multiple and compounding economic impact on Connecticut and (ii) the limited ability of the existing infrastructure in the receiving communities to support the proposed moves. Appendices consist of: (1) 1995 Seawolf Class Homeporting Final Environmental Impact Statement, (2) demographic overviews of the existing and receiving communities, (3) an April 2005 update by the Northeast-Midwest Institute on the depleted military presence in the northeast United States, and (4) questions posed to the Navy by Connecticut representatives, which have not yet been answered.

Environmental costs of the proposed closure are addressed in the final section, on Criterion 8. An in-depth analysis by the Connecticut Department of Environmental Protection (DEP) shows that the Navy failed to account for some $162 million in short- and long-term environmental cleanup costs that would necessarily follow closure. This section includes considerable detail contrasting the Navy's estimated of closure and remediation costs with those of DEP.

Among the attachments to this section are comparisons of the environmental attributes of the existing and receiving locations and a report from the Connecticut Attorney General concluding that: (i) DoD's projections for the cost of radiological waste cleanup are unreliable, (ii) DoD failed to consider the legal requirements of its Federal Facilities Agreement (FFA) in computing cleanup costs, and (iii) because of such failure, DoD has grossly underestimated the cost of closure to the economy of southeastern Connecticut. Because of the cited flaws, the Attorney General concludes that DoD has no realistic idea of the cost of full cleanup of SUBASE New London. The report notes that the FFA – which governs cleanup of the 20+ Superfund sites on the base -- requires cleanup before any transfer of the property. The Navy's assumes that the property will be transferred within six years and thus does not include the financial impact beyond 2011. This is inconsistent with the FFA.

The voluminous information provided in this supplemental submission further supports the removal of SUBASE New London from the closure list. The materials demonstrate the weakness of DoD's military value and other arguments for closing the base, particularly those involving costs/savings.

The Connecticut team deeply appreciates the Commission's fair consideration of its hearing testimony on July 6 and the materials presented in this submission. We stand ready to respond to questions or further explain the information conveyed in this submission.

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BRAC COMMISSION JULY 6, 2005 PUBLIC HEARING TESTIMONY (SUPPLEMENTAL)

I submit this document and attachment thereto, as additional and supplemental testimony to my statements to the BRAC Commission on July 6, 2005 in Boston, MA.

Attachment 1, A Questioning of the Determination of Military Value, Revision 1, 14 July 2005, is submitted as additional material that challenges the Military Value data gathering and analysis presented in Department of the Navy Analysis and Recommendations, Volume IV and Appendix A thereto. Changes and revisions, as well as several new questions, are identified by italics. In particular, it is noted that we have performed a Configuration Analysis run (as suggested in Additional Question 3) with SUBASE New London set at 100 Military Value Points, the Maximum Value. The "constraints" discussed in my July 6th testimony result in SUBASE New London being closed.

Attachment 2, BRAC 2005 Red Team Meeting with the IEC on April 6, 2005 is also submitted for the record. We note the Red Team comments regarding Military Value and Potential Weaknesses in support of our July 6th Testimony.

In amplification of our testimony regarding the Naval Undersea Medical Institute (NUMI), we submit the following extract from the 10 pages of SUBASE NEW LONDON MILVAL "Unique Capabilities or Missions" deleted from consideration by the Department of the Navy Analysis Group (DAG).

"NUMI houses the only Naval Training Schools for: Submarine Independent Duty Corpsmen (IDC), Radiation Health Officer, Radiation Health Indoctrination, Radiation Health Technician, and Undersea Medical Officer. NUMI is the center of Excellence for all consultative services in respect to Undersea Medicine and radiation health issues.

The Submarine Medical Research Laboratory is DOD's Center for Undersea Biomedical Research. The laboratory's mission is to protect the health and enhance the performance of our warfighters through focused submarine diving and surface research solutions. Established in WWII, NSMRL was responsible for selecting personnel for training at Naval Submarine School, conducting specialized training in submarine medicine for hospital corpsmen and medical officer, and researching the medical aspects of submarines and diving. Today NSMRL continues to be the biomedical R&D leader in submarine qualification of submariners, escape and rescue from disabled submarines, diving bioeffects, and hearing conservation technology."

It is noted that the superb performance of NSMRL at Naval submarine Base New London was recognized with the award of the Secretary of the Navy Meritorious Unit Commendation.

John Markowicz
Chairman
SUBASE Realignment Coalition
July 14, 2005

Attachment 1: A Questioning of the Determination of Military Value, Revision 1, July 14, 2005
Attachment 2: Talking Paper - BRAC 2005 Red Team Meeting with IEC on April 6, 2005

A QUESTIONING OF THE DETERMINATION OF MILITARY VALUE

Revision 1 (Changes in italics) 14 July, 2005

In the preparation of the Navy proposals, the single most important piece of data may be the relative military value (MV) determined for each of the bases. These values, along with capacity analysis valuations, are the feedstock to the configuration analysis (CA), and to the extent they are incorrectly formulated, can make the CA and all that follows in the BRAC evaluation process meaningless.

The assignment in the MV exercise of a single numeric value to each base implies the result of an objective process. This is not true. There were many steps in the valuation process in which the value was susceptible to the "thumb-on-the-scales" at worst and lack of relevance at best. Specifically:

1. Selection of the questions – determines which areas are to be considered, and equally important, which areas are omitted from consideration.
2. Wording of the questions – critical; the inclusion or exclusion of even one or two words can drive the end product.
3. Weighting – can drive the product in the desired direction and to a desired answer.
4. Analyst adjustment – non-linear and can produce a desired answer at the discretion of the analyst.

All of the above subjective elements are represented in the questions which were scored to determine Military Value. Out of a possible 100 assignable points, the range of results run from 30.82 to74.50, with a median of 48.21 and a standard deviation of 10.97. No confidence levels or other statistical measures of reliability of the evaluation are provided, but given the relatively tight range of results (34 points) against a standard deviation of 10.97, it is fair to say the MV evaluation for BRAC 2005 is not statistically reliable. The same general characteristics, for example, if applicable to standardized IQ tests would argue that an IQ of 90 was essentially the same as 120. In actuality, for IQ tests, that range represents about three standard deviations. Results like these speak in qualitative terms to the poor quality of the questions posed, the scoring of the questions, and the comparative relative values assigned. These issues are detailed as follows:

GENERAL QUESTIONS/COMMENTS

1. Use of Cruiser Equivalent Length (CGE) is an attempt at a "one size fits all" approach to measuring berthing capacity. In use, it can be misleading and is subject to manipulation

   ex: 10 piers, each 70 feet = 700 feet = 1 CGE
   Useless in evaluating berthing capability other than for small boats

   ex: Max CGE derived from arbitrary rule requiring use of nesting, though some types of ships do not normally nest. Results in exaggerated

capability. ex: Kings Bay CGE 13.5 impossible to berth and support 13 TRIDENT subs at Kings Bay.

ex: Kings Bay credited at 13.5 CGE. Extremely rare that more than 4 SSBNs (4 CGE) in port. However, to add 6 SSNs, 4.5 CGE if all in port, additional pier space must be constructed.

In comparing capabilities of two similar function bases, why was berthing capability for the specific type ships involved not counted? That is, the better question would be how many SSNs or SSBNs can be berthed and supported under normal circumstances?

2. Jointness - Does not appear in any question, yet is to be a major consideration of the selection criteria. Was it considered in any stage of the calculation of MV?

3. Homeland defense – same questions as 2. above

4. Average MV of Bases – closure of lower scoring bases raises the average MV of remaining bases. True but irrelevant. Why was no calculation made, using the same questions, of the increase in MV of the receiving site of a recommended action?

   Ex: adding 6 SSNs to Kings Bay does not increase the *calculated* MV of Kings Bay since it is not a change of CGE. No questions ask how many ships; a yes answer could mean 1 ship or 20 ships, masking the clear advantage of higher capacity.

   Ex: Adding Sub School to Kings Bay does not significantly change the *calculated* MV of Kings Bay since only a single question addresses the capacity of training, and then only of "C", "F" and pipeline schools. The max credit for the question is only 1.85 points.

   Ex: Adding 11 SSNs to Norfolk does not change the *calculated* MV of Norfolk. No change in CGE.

   Ex: Why is not the cumulative calculated MVs of all ports considered, instead of the irrelevant average MV?

5. The judgment of an analyst was used in 78% of the questions/scoring. "analyst will apply a function for zero credit to maximum credit" What guidelines were given to the analyst? What quality control measures were taken to assure consistency in application of any guidelines?

   Ex: In scoring for the number of floating and graving docks, the same analyst, presumably, used a linear scale for the floaters, with each rated

at the same value, but with graving docks, he scaled on a curve, with the first dock being a significant value, and additional docks being worth very little additional.

Ex: In comparing the scoring between Kings Bay and New London, the shorter distance at Kings Bay to the 50 fathom curve, 70 vs 80 miles, is essentially equal in points to the difference between 3 graving docks and 1 floating drydock in New London with 1 graving dock in Kings Bay.

6. Why was there no comparison of the normal utilization rate of piers/wharves with the calculated CGEs?

   Ex: a base normally utilizes pier space to berth and support 8 DDs. Max normal capability is 12 DDs. But under the rules, CGE may equal 18 CGE. Which is the better determination of excess capacity?

7. Following calculation, how was MV actually used in determining closure recommendations?

Operational Infrastructure Questions

SEA 1 CGE is a specific rating of capacity. How did the analyst award points?

ex:	CGE Earle	8	score 1.11
	CGE Kings Bay	13.5	score 1.15
	CGE New London	16.25	score 1.23

With 2X as much berthing, New London scored only 0.12 over Earle
With 20% more berthing, New London scored only 0.08 over Kings Bay

These examples demonstrate something other than linear scoring, but there is no clear pattern of value assignment. DoD has not explained the directions given to analysts and the quality control procedures used.

SEA 2 What is the basis for a bonus of up to 4.15 points for a capability of berthing nuclear aircraft carriers? Only one other type ship (SSBN) was considered by type. What is the purpose of the words "cold iron status"? On the east coast, there are only two carrier qualified ports, and of those, Mayport is not certified for nuclear carriers. Was this wording included to increase the value of Mayport by considering nuclear carriers with shut down nuclear power plants?

SEA 3 Why was this question worded to include the nuclear weapons handling capability? Was it directed solely at Kings Bay *and Bangor*, since no other ports can meet this requirement? What justifies a weight of 4.15 points? This score = 6.5% of total MV of Kings Bay.

SEA 4 How did the analyst adjust the linear feet of berthing to compute scores?

Ex: New London	16.25 CGE	0.0 score
Kings Bay	13.5 CGE	1.69 score

SEA 5 Since New London received no points for its piers in SEA 4 above, how did the analyst adjust linear feet of piers new since 1990 to give New London a score of 1.01 and Kings Bay a score of 0.88?

SEA 6 How does an internet capability at the pier justify a maximum score of 2.0 points? This, for example, equals the points for berthing a nuclear carrier at Mayport.

Questions from SEA 4, 5 and 6. New London (SEA 4) is credited with 500 feet of adequate and 2040 feet of sub-standard piers. In SEA 5, New London is credited with 4008 feet of modernized pier. Does this mean that New London has 1468 feet of modernized but less than sub-standard piers? With 7766 feet of pier with internet protocol in SEA 6, does this mean that New London has at least 5226 feet of piers which are less than sub-standard?

SEA 7 How is maximum capacity Index for Maintenance calculated and adjusted by the analyst?

Ex: Kings Bay receives the highest point score of <u>all bases</u> with the exception of the shipyards at Portsmouth and Norfolk, yet maintains less than 8 subs.

SEA 11 What is the importance of the distance to a deperming facility? What is the frequency of deperming a ship?

SEA 13 Why is there no credit for a port which does not require specialized security/emergency services? *Are the first 3 parts of this question not an additional bonus for CVN and SSBN ports only?*

SEA 14 and 15 Why were these questions deleted late in the process? They appear to be worthy questions. Where did the IEG assign credit and how was it incorporated and scored in MV?

SEA 16 Why is this question biased towards SSBNs? Why is there not a penalty for requiring very large ESQDs?

Operational Training

1. Why are 9 out of 11 scored questions concerned solely with the distance to facilities/areas?
2. Why do only questions SEA24 and 30 consider throughput, i.e. capacity of training?

SEA 22 Why was this question deleted? Where did the IEG assign credit and how was it incorporated and scored in MV?

SEA 24 Why did this question include the words "schools located within 50 miles"? No other question permitted a base to take credit for facilities located 50 miles away and possibly on another base.

ex: Kings Bay can score for facilities at NAS Jacksonville and, possibly, NS Mayport.

Why are only "C", "F" and pipeline schools considered? Why is the capacity for basic school not considered? Does this question deliberately bias against New London with its large sub school?

ex: There is no training credit for *most* of sub school capability

SEA 25 and 26 Why do these questions add value to a submarine base when there is no relevance in distance to AAW and gunnery ranges?

SEA 28What is the frequency of use of mine warfare training range by SSBNs?

SEA 29 Based on usage frequency of a submarine training range, what is the justification for a max score of 3.15 points?

Why does a surface ship *base* get value from the distance to a sub training range? Mayport score 1.89 New London score 0.0 Is this bias against New London?

Port Characteristics Questions

SEA 32 *Why did the analyst scale the distance to the 50 fathom curve to account for differences only between 8 and 80 miles?*

What is the relevance to bases/stations which do not berth subs?

ex: Ingleside score 1.13
New London score 0.0

Why would a surface ship base not be benefited by further distance from the 50 fathom curve (i.e. from operating enemy subs)?

SEA 33 What is the relevance of aircraft carriers ability to transit the harbor channel to Sub Base Bangor? Bangor score 2.08

SEA 34a Question was deleted for non-availability of data from some activities. Why was the data which was available not used?

SEA 38 How was this question scored and adjusted by the analyst?

ex: Kings Bay requires *large* annual maintenance dredging, New London does not, yet scoring was the same

SEA 43 What is the relevance of distance as opposed to a factor such as time from order to receipt?

Environment and Encroachment

ENV 1 *Why is the question not addressing the issues of frequency and amount of dredging required? This treats a base needing minor dredging once every 20 years equally with a base requiring major dredging every year.* Why is no credit given for not requiring annual dredging?

ex: Kings Bay requires annual dredging but has a disposal site. New London does not require annual dredging. Kings Bay scores 2X New London *because it has a large disposal site.*

ENV 2 Why is no credit given for not requiring very large ESQD arcs? Is this question biased towards SSBNs?

ENV 7 How was this question answered and scored by analyst?

ex: 7a. (40%) Kings Bay has manatees (endangered) <u>in harbor</u>

7c. (20%) Kings Bay has whale calving grounds astride departure path to sea

Kings Bay score 0.86 New London score 1.15

Personnel Support

PS 1 Why is the word "military" included? What is significance of being in catchment area for another base's facility? Why is distance to nearest hospital not considered? What justifies the max weight assigned?

ex: 1.01 points versus 0.73 for the entire list of support facilities such as Commissary, Exchange, Family Service Center, etc.

PS 2 With 50% of the question based on housing wait time, how was the question answered and adjusted by the analyst?

What was the definition of "adequate" with respect to bachelor quarters? Why were all other rooms ignored in scoring?

Additional Questions

1. What consideration was given to the very large standard deviation value when comparing MV of the bases and making closure decisions?

2. Given the closeness of the MVs of Mayport and NewLondon, was consideration given to closing Mayport and thus eliminating twice as much "excess capacity"? 32.5 CGE vs 16.25 CGE

3. *What is the justification for excluding Mayport and Kings Bay from consideration of closing in view of the requirement to consider all bases equally?*

4. *If the MV of New London were raised to the maximum value of 100 points and the configuration analysis rerun, would New London stay open?*

5. *If the assumption is made that New London would close and the moves proposed by DOD would occur, what is the increase in calculated MV of Norfolk and Kings Bay?*

6 April 2005

Talking Paper

Subject: BRAC 2005 Red Team Meeting with the IEC (Infrastructure Executive Council), (Room 3E928, 1630 – 1815, Wednesday, 6 April 2005)

Background: The purpose of the meeting is to summarize the findings of the 2005 BRAC Red Team to date for the IEC. Significant overarching issues are: working group inconsistency of strategies, military value and capacity approaches; process for combining functional and service recommendations into BRAC recommendations; and DoD integrated story and report development.

Talking Points

- BRAC Red Team asked to look at evolving recommendations from a BRAC commission and DoD policy perspective
    - We did not attempt to judge recommendations from military standpoint
    - Inevitably, our "process questions" may have influenced the recommendations
- As you expected this BRAC is more about the "R" Realignments than the "C" Closures
- Joint Cross Service Groups and Military Departments have looked at parts of DoD previously un-reviewed
    - JCSGs have done well but have also taken differing approaches
    - Desperately need to integrate their efforts by installation and style with consistent justifications
- In past four rounds, DOD has:
    - Closed – 97 bases
    - Realigned – 86 bases
    - However, the non-installation infrastructure has been largely untouched
- Size of BRAC 05
    - Much smaller number of base closures
    - Non-installation infrastructure has been looked at very hard – with large results
- Transformation
    - Was very much a part of everyone's thinking and played a huge role in strategic analysis
    - However in the report to the Commission, DoD must cast all recommendations and justifications in BRAC terms consistent with the law
- Military Value
    - Not consistently used (applied to installations, functions, and weapon platforms)
    - Quantitative
    - Qualitative
        - Military judgment is part of military value calculations in some cases and applied after military value calculations in other cases
        - Military judgment is sometimes used without adequate substantiation to justify overriding the quantitative military value (based on business/economic factors rather than military requirements)
        - Since military value is the preeminent criteria for closure or realignment, any military judgment based decision that is not within the purview of the particular skills and expertise of military professionals should be scrutinized carefully

- Integration
  - JCSG integration goes beyond knitting together. Each group has used different strategy, guiding principles, surge requirements, capacity measures, military value, and military judgment approaches
  - Need to boil down to BRAC language recommendations

BRAC Action	where	by what	to where	and retaining what
• Close • Realign • Inactivate	• losing installation	• moving • relocating • consolidating • privatizing	• gaining installation	• enclaves • functions • activities

- Metrics
  - Traditional: Plant Replacement Value (PRV) does not properly reflect changes in infrastructure
  - Annual Recurring Savings is better measure
  - NPV savings amounts are inflated over the past due to discount rate reductions
  - Civilian positions eliminated
  - Military billets eliminated or converted to warfighting roles
  - Capture new capacity requirements as result of surge, Army end-strength increases, returning overseas units, homeland security, etc. that reduced excess capacity pool to work with
  - Reduction of annual lease costs is another possible "good news" metric
- Role of BRAC Commission
  - Remove by simple majority vote, those recommendations that "substantially deviate from the force structure plan and/or final selection criteria"
  - Add to list with 7 of 9 votes super majority
  - Initial Commission reaction to presentation is very important
- Potential Weaknesses
  - Strategy – Lack of consistency among DoD, Military Departments, and Joint Cross-Service Group approaches
  - Integration, consistency, strategy linkage, ties to capacity reduction, strong story
  - Surge capacity policy – Should state that policy was for each Service/JCSG to determine surge capacity based on requirements unique to each group's mission
  - Many candidate recommendations do not need BRAC authority to implement
    - BRAC military construction and environmental restoration costs could be greatly reduced thereby increasing NPV savings if these actions were accomplished outside of BRAC
    - We understand why these actions were included under BRAC
  - All candidate recommendations that have payback periods greater than 20 years could be considered substantially deviating from the final selection criteria in that the COBRA model only evaluates up to 20 years
    - With careful review after "roll up" most (if not all) will have shorter payback periods
  - Have all issues been addressed
    - BRAC law requires <u>all</u> military installations in the U.S. to be considered equally (beware of statements such as "removed from further review due to…)

        - Re-look at candidate recommendations removed from list before IEC review
- Possible Political Issues
    - *(Provide Examples)*
- Deal Breakers
    - *(Provide Examples)*
- BRAC 2005 Story
    - Story approach is crucial with respect to commission and public perception
        - Strong DoD overview of transformation and infrastructure objectives
        - Opportunity to take critical review
        - Modernize through transformational thinking
        - Overseas moves included in BRAC deliberations so as to properly determine location and integrate returning units
        - Past BRACs looked primarily at bases – 2005 BRAC looked at supporting infrastructure
        - Strong role for Joint Cross Service Groups
    - Presentation of Results
        - Use various very positive measures of success
        - Anecdotally take credit for facilities, bases and areas freed up for returning units and resources freed up for homeland security and GWOT
    - Recommendations must be tied to installations

Substantial Deviation from Selection Criteria 4 and 5:

At the July 6, 2005, BRAC hearing in Boston, Gabe Stern, analyst for Connecticut's BRAC team, explained to the Commission how the Navy substantially deviated from Criteria 4 and Criteria 5. In the COBRA modeling, DoD introduced flaws into the model such as mixed sources of inputs, mixed quality of inputs, omitted costs and overstated recurring savings. It is the overstated savings that drove the results and skewed the comparability and value of the COBRA output. Additionally, costs that would be incurred by the federal government, but not directly by DoD, were ignored. Also overlooked were significant environmental costs and increases in submarine construction costs and quality that will result from the closure of SUBASE New London. (See July 6, 2005, BRAC testimony of George Sawyer and EB President John Casey.)

Most significantly, DoD overstates recurring savings. Claimed savings are the driving factor in showing a positive return on investment. COBRA results are most sensitive to adjustments to annual recurring savings levels. These cost and savings flaws in the Navy's COBRA model undermine the comparability and value of its output.

This document provides additional details on the Navy's analytical errors and how they negatively impacted the COBRA model. Provided for your review is the COBRA run used by the Navy to evaluate Scenario DON-0033B. Also included are three Connecticut refined COBRA runs that are adjusted to address incorrect or missing costs in the Navy's analysis., along with DON-0004 runs requested July 6 by Commissioner Skinner.

Specific costs misstated in the Cobra analysis are shown in the table below:

COBRA Analysis Overview
One-time military construction costs underestimated: **$205 million**
One-time moving costs understated: **$31 million**
Environmental closure costs understated: **$37.1 million**
Environmental remediation costs ignored: **$125 million**
Recurring personnel savings overstated: **$84 million/year**
Recurring other unique costs underestimated **$42 million/year**
Loss of reduced overhead at EB unaccounted for: **$50 million/year**

One-time military construction costs underestimated: $205 million

DoD's analysis underestimated the cost of reconstructing the Submarine School training facilities. The Navy used a construction cost of $211 per square foot to construct the training center. This is similar to the cost to build a typical high school. Recent experience indicates a more accurate figure would be $325 per square foot. This increased cost can be attributed to higher structural and services requirements, such as IT services, security to a secret level, and the extra static and dynamic loading the Submarine School building must accommodate to support fire, vessel flooding, machinery, and other operational trainers and simulators. The $114 per square foot

increase results in additional costs of $47 million. To actually construct an equivalent footprint to match the 10 buildings that exist at SUBASE New London, the cost would increase another $28 million. However, this estimate does not take into account site issues that exist at Kings Bay. Per a Federal Emergency Management Agency (FEMA) report on the soil conditions at Kings Bay[1], construction costs would likely be 20% higher resulting in an additional $30 million plus in construction costs. This is because the soil conditions at Kings Bay require additional site work such as piles and foundation reinforcement. The total adjustment for Submarine School construction at Kings Bay is $105 million.

The DoD proposal also showed a shortfall in BEQ funding. Kings Bay BEQ and messing capability improvements were not priced appropriately. The Navy identified 311 available beds at Kings Bay with new construction planned for 1,375 beds for a total of 1,686 beds. However, the requirements based on New London's actual BEQ population are much higher. The Submarine School alone requires 1,500 beds with one third of other requirements at 633 beds, equaling a total 2,233 required beds. That amounts to a shortfall of 547 beds. When those beds are multiplied by the Navy average of $37,000 a bed, it totals $20,239,000 in unaccounted for funding.

The data calls report between 150 and 200 vacant Navy housing units at Kings Bay. However, we estimate that the proposed transfer of submarine crews and their dependents to Kings Bay will require the provision of at least an additional 800 DoD living units at a current cost of about $100,000 per unit, or a one time cost of $80,000,000.

Our view of Navy's cost treatment has evolved as the Navy responds to questions about apparent omissions and inconsistencies. As we began our inquiry it appeared, for example, that the Navy had certified twice the pier construction unit cost (the Navy uses cost per square yard) for new pier construction at Norfolk than at Kings Bay. In response to our questions and after some internal investigation, the Navy reported that recitation of pier costs between the sites was inconsistently grouped in the COBRA algorithm. The Navy's recently supplied explanatory numbers now seem to suggest that when the site input data are similarly grouped, it is Kings Bay that reports twice the per square yard cost as Norfolk rather than the other way around. We expect that additional one time costs for piers should be reflected in COBRA and are further dialoguing with the Navy to redetermine what adjustment is needed.

One-time moving costs understated: $31 million

The one-time relocation costs are understated by $31 million. The Navy did not include the cost of installing and testing equipment at the receiving facility. This is estimated to cost $16 million. In addition, the cost of personnel relocation is understated by about $15

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[1] Federal Emergency Management Agency "Design Guidelines for Flood Damage Reduction" December 15, 1981. See Page 66 for reference to Kings Bay. The FEMA report references a study regarding the Kings Bay Naval Base. The referenced document is a Master Plan for development of the base. It was prepared by Zimmerman, Evans and Leopold Inc. and AECK Associates both from Atlanta GA. The exact name of the study is not known. We have requested a copy from the Navy (See the DECD document entitled "05. Questions to the Department of the Navy 6-28-05.doc"). The Navy has not responded to this request as of yet.

million. The actual cost to relocate 408 additional military personnel would be $1.2 million and the cost to relocate 370 additional civilians as proposed in Scenario DON-0033B would be $13.8 million.

Environmental closure costs understated: $37.1 million
See Criterion 8 for explanatory detail. Please note that this estimate has increased from our July 6 presentation. We neglected to include an estimated $ 2 million for off-base Underground Storage Tanks (e.g. housing, former gas stations, etc). An individual table of this item can be found on page 31 of Attachment 2 in Criterion 8. The estimated total for RCRA remediation and closure costs was also changed from $14.5 million to $17 million. Detail can be found on pages 32 and 33 of the same document.

Environmental remediation costs ignored: $125 million
See Criterion 8 for explanatory detail.

Recurring personnel savings overstated: $84 million/year
Recurring personnel reduction savings were overstated by an estimated 50% or $84 million/year. In fact, $169 million of the $192 million net recurring savings was due to the elimination of 1,560 billets. The Navy justifies its recurring savings by assuming the 1,560 unspecified personnel are in excess at Norfolk and Kings Bay. Elimination of these billets is the bulk of the recurring savings. Clearly, if such excess labor does exist at Norfolk and Kings Bay, the Navy could merely eliminate these billets in place and achieve the same substantial recurring savings claimed from the realignment without incurring the one time costs of the proposal.

DoD analysis eliminates:
- ✓ 136 officers @ $124,972 = $17 million per year
- ✓ 681 enlisted @ $82,399 = $56 million per year
- ✓ 743 Civilians @ $59,959 = $53 million per year
- ✓ Basic allowance for housing = Savings of $43 million per year

The expected personnel savings are unrealistic and not likely to materialize. The most Navy documented examples of overstated billet reductions concern medical and security personnel. Today, 528 medical billets at SUBASE New London service 8,045 personnel. Only 62 are to be relocated to service 6,485 relocated personnel. This represents an unfathomable 725% increase in the ratio of service personnel to medical providers. Of the 197 security personnel at SUBASE New London, Norfolk requested 91 billets. Yet Kings Bay requested only 1 additional security billet, while it is scheduled to receive an incremental 6,000 personnel and six nuclear attack submarines. Some economies might be expected, yet these ratios defy common sense.

The proposal also eliminates all personnel support billets. It is unrealistic to eliminate all 181 billets that normally vary with population size.

Note that we have had discussions with the Navy over the past 30 days seeking to better understand all of the claimed billet reductions. In particular, we have asked the Navy to

parse the claimed eliminations into those associated with supporting the fixed costs of the SUBASE and SUBASE tenants and those associated with the variable activities at SUBASE. Other than providing enumeration but no detail on medical billets, the Navy to date has been unable to account for the source or supporting rationale of the billet eliminations.

The Navy explains that certain eliminations are hard wired via algorithm into the COBRA model, that is, the COBRA model is programmed on a formulaic basis to assume a certain number of a closed facilities' personnel are eliminated under complete closure. This makes some sense, but as determined in the case of the proposed SUBASE New London closure the numbers are so extreme as to defy logic. The Navy agrees that a reality check is required and has told us that they will continue to work on developing a full description of the claimed personnel eliminations. We expect that the Navy will need to reverse engineer to attempt to get to an explanation that supports the formulaic claimed billet eliminations, an exercise which may prove useful in understanding the elimination claims and perhaps force a more realistic valuation.

Recurring other unique costs underestimated: $42 million/year

Four hundred thirty mission essential contractor billets that exist at SUBASE New London at $57 dollars an hour ($50 million/year) today are to be replaced by only 143 government billets at $29 dollars per hour ($8 million/year). This does not make sense based on experience in New London where just the opposite occurred: contractor billets replaced government billets. The Navy directed (and continues to use in the field) substitution of contractor employees at New London because it saved significant costs, with 1 contractor employee replacing about 1.6 government employees. We believe, based on discussion with the contractor, that Norfolk Naval Shipyard or a contractor will still need skilled labor and that therefore Navy claimed savings are overstated by $42 million per year.

Summary of Cost and Savings Analysis:

The Navy claims a one-time cost of only $679 million. By the end of the Navy's study period in 2005, they claim a net present value savings accrual of about $1.5 billion. They predict a break-even point of 2013 (Attachment 1). Correcting for one time cost underestimates and improper crediting of transferred personnel billets eliminates any savings in the study period, and results instead in a cost to the nation of $274 million. If it occurs, break-even would not be realized until the year 2041 (Attachment 2), well beyond the Navy's 2025 study period.

Adding corrections for ignored environmental remediation costs at New London and the ignored new housing costs at Kings Bay brings this recommendation to a cost of over $470 million. Break-even, if it were to occur, would not be until the year of 2057 (Attachment 3).

In the 1990's, EB took over the maintenance activities at SUBASE New London. This arrangement has worked well for both the Navy and EB. As stated by EB President Casey in his July 6 testimony, it has reduced overhead at EB some $50 million a year. If

the SUBASE New London closes, this advantage is lost and the cost of new submarine construction will rise. $50 million a year over the four-year construction time frame would add $200 million to the cost of a new submarine (Attachment 4). Therefore DON-0033B further overstates savings because it ignores a recurring DoD cost the closure would impose of at least $50 Million per year.

Discussion Point: DoD Net Present Value Discount Rate:

In the Connecticut COBRA runs as indicated in our July 6, 2005, testimony, we continue to use the DoD discount rate to determine Net Present Value (NPV). DoD uses a forecasted inflation rate for their 2006 through 2025 (20 year) study period to discount future revenue streams to a single 2005 present value; current DoD and Connecticut runs set this value at 2.83%.

The purpose of calculating NPV is to properly state the value of a future savings or cost in current dollars to allow different capital investments to be contrasted and compared on a common basis.

While we have not changed this value in our runs, we strongly note that for debt financed economic evaluations, the correct discount rate is not the forecasted inflation rate but rather the cost of money to the borrowing entity. For the federal government, this should be at least the cost of debt financing, such as the ten year treasury rate, currently at about 4.25%, a rate we note that is at risk of rising quickly in the near term.

The inflation rate is only a good tool for estimating the value of a future dollar today if that future dollar savings is obtained at no cost. In the instance of government spending for base closings, the use of the expected rate of inflation as a discount rate is therefore only appropriate if the one time costs and recurring costs are funded from current tax revenues or savings. Since the federal government relies on debt financing to fund at least incremental capital expenditures, the government's cost of borrowing money is the appropriate discount rate to use, not the inflation rate. Wall Street has long recognized that the NPV benefit of debt-funded projects is appropriately evaluated with a discount rate based on at least the cost of money of the borrower.

Over time the cost of debt in a stable economy is generally greater than the rate of inflation. Using a higher discount rate lowers the savings or costs in terms of NPV. In other words, the value of a future dollar today depends on the cost of achieving that dollar savings. If that cost requires the issuance of debt, then the cost of acquiring that money must be included in evaluating that future revenue stream. That cost diminishes the value of that future dollar above the simple cost of inflation.

The difference between a 2.83% discount rate and a 4.25% discount rate in a cost benefit analysis such as COBRA DON-0033B is that the higher rate diminishes the value by $350 to $400 million depending on the specific run.

Adjusted COBRA Scenarios:

Several of the one time cost and recurring savings recommended Connecticut adjustments discussed herein are illustrated in the COBRA summary run sheets attached hereto. Details of these runs are contained in the electronic .CBR files included with this report. The CBR files allow BRAC staff the opportunity to run COBRA with these changes as well as alternate cases. We note that the Navy is further investigating at our request documentation of specific claimed costs and savings. Their pending responses may suggest further adjustments to the COBRA analysis. We will update BRAC staff on the implication of any new information on COBRA output.

Here is a summary of COBRA runs to date:

DON-0033B

Attachment 1: CR DON-0033B -NAVY COBRA Files.
This is the Navy's COBRA run for the SUBASE New London closure Scenario DON-0033B. It is referred to as the Navy Base Case when referenced verses the Connecticut refined scenarios detailed below.

Attachment 2: CR DON-0033B - COBRA CT Corrected Scenario.
This is the Navy's COBRA run adjusted to correct for the discrepancy between the number of Electric Boat (EB) Contractors eliminated in New London and the number of additional DoD personnel added in Norfolk and Kings Bay. This COBRA run also treated 50% of the SUBASE New London eliminated positions as transfers from New London to Norfolk and Kings Bay. This scenario adds the additional $133 million in one-Time Cost associated with KB Pier, dismantling, moving and reconstructing sub school and environmental analysis costs.

Attachment 3: CR DON-0033B - CT COBRA CT Corrected Scenario KB House NYLON Envir
This is identical to the previous scenario with additional $80 million in one-time costs for 800 Housing Units in Kings Bay and $125 million for environmental remediation in SUBASE New London.

Attachment 4: CR DON-0033B - CT Corrected Scen. KB House NLON Envir EB Ovhd.
This scenario is identical to previous scenario plus additional miscellaneous recurring cost of $50 million per year to reflect increased EB overhead that would be charged to the Navy if SUBASE New London is relocated.

DON-0004

In addition to the fatal flaws in DON 0033B, Connecticut has examined the assumptions in the Navy's Don-0004, the COBRA runs the Navy executed to evaluate the potential savings of moving 11 SSN submarines from Norfolk to New London. In response to Commissioner Skinner's inquiry at the July 6th Commission hearing, enclosed are the following COBRA run summaries:

Attachment 5: DON-0004 The Navy COBRA run evaluating transfer of subs from NORFOLK to SUBASE New London. The Navy's analysis included a one time cost for acquisition of a new drydock for New London, incorrectly ignoring the fact that an available drydock currently under going rebuild at EB, would be available bin time for any transfers obviating the need for a new drydock. Interestingly, in DON-0033B the Navy met a perceived need for an incremental drydock at Norfolk not by building a new drydock but by having a drydock towed from a Washington base to Norfolk. The drydock and other corrections in Connecticut runs are described below.

Attachment 6: DON-004 CT Rev 1 - Navy COBRA Run adjusted to eliminate $95 million in 1-Time Costs for new Drydock ($93 mill. for drydock and $2 mill. in pier repair costs). Also changes timing of enlisted positions eliminated in NORFOLK to match transfer of subs and adjusted Misc. Recurring costs associated with EB Contractors to match sub support positions eliminated in NORFOLK. Based on Navy experience in New London, 1 EB contractor can replace 1.6 military personnel—this run reflects reductions in personnel accordingly. NPV savings of about $55 million over the Navy study period (2005-2025).

Attachment 7: DON-004 CT Rev 2 - Rev 1 changes plus reduces the number of enlisted transfers to NLON used in Don 004 by 136 enlisted billets that are not currently filled in NORFOLK (101 in 2006 and 25 in 2007.) Also increases the number of eliminated positions at NORFOLK to reflect these unfilled billets that don't have to be filled. Run shows results in increase of NPV savings over Rev 1. NPV savings for Rev 2 are $ 230 million through 2025.

Attachment 1: CR DON-0033B -NAVY COBRA Files.
This is the Navy's COBRA run for the SUBASE New London closure Scenario DON-0033B. It is referred to as the Navy Base Case when referenced verses the Connecticut refined scenarios detailed below.

CR DON-0033B -NAVY COBRA Files.zip

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EIR_Navy.RPT	6/30/2005 2:26 PM	12391	91	1159
Error_Navy.RPT	6/30/2005 2:26 PM	617	33	416
InputDat_Navy.RPT	6/30/2005 2:26 PM	82504	88	9801
MilConAs_Navy.RPT	6/30/2005 2:26 PM	18901	87	2505
NPV_Navy.RPT	6/30/2005 2:26 PM	2198	65	778
OneTime_Navy.RPT	6/30/2005 2:26 PM	41398	95	1972
Overhead_Navy.RPT	6/30/2005 2:26 PM	13357	89	1437
PersImp_Navy.RPT	6/30/2005 2:26 PM	36529	95	1886
PersPerc_Navy.RPT	6/30/2005 2:26 PM	12831	91	1206
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Department : Navy
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Option Pkg Name: DON-0033B Close SUBASE NLON CT; Subs to Norfolk & Kings Bay
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Starting Year : 2006
Final Year : 2011
Payback Year : 2014 (3 Years)

NPV in 2025($K): -1,576,425
1-Time Cost($K): 679,641

Net Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	33,143	95,515	15,883	64,908	203,619	0	413,069	0
Person	-2,097	-6,777	-19,354	-26,096	-32,744	-69,123	-156,191	-132,068
Overhd	-189	-483	-19,096	-19,858	-33,414	-56,006	-129,047	-62,718
Moving	144	3,821	9,888	639	5,906	24,459	44,858	0
Missio	0	-161	-155	8,081	8,081	-5,617	10,229	-5,617
Other	239	8,197	39,454	43,999	10,311	60,305	162,506	7,623
TOTAL	31,240	100,111	26,620	71,675	161,759	-45,982	345,424	-192,779

	2006	2007	2008	2009	2010	2011	Total
POSITIONS ELIMINATED							
Off	2	8	23	1	23	79	136
Enl	44	23	88	2	88	436	681
Civ	0	37	40	3	40	623	743
TOT	46	68	151	6	151	1,138	1,560
POSITIONS REALIGNED							
Off	2	7	146	5	125	198	483
Enl	1	51	1,065	21	1,247	1,841	4,226
Stu	0	0	71	0	49	1,447	1,567
Civ	1	76	38	12	28	54	209
TOT	4	134	1,320	38	1,449	3,540	6,485

Summary:

Scenario Title: Close SUBASE New London, CT; Relocate submarines to NS Norfolk, VA and SUBASE
Kings Bay, GA
For the purpose of this Scenario Data Call, the following BRAC Actions are being considered for analysis:
Action 1: Close SUBASE New London, CT.
Action 2: Relocate SSNs from SUBASE New London, CT, to SUBASE Kings Bay, GA, to include required
personnel, equipment, and support.
Action 3: Relocate SSNs from SUBASE New London, CT, to Naval Station Norfolk, VA, to include required
personnel, equipment, and support.
Action 4: Relocate COMSUBGRU TWO from SUBASE New London, CT, to Naval Station Norfolk, VA.
Action 5: Disestablish COMNAVREG NE, Groton, CT. Realign Installation Management function to
COMNAVREG MIDLANT Norfolk, VA.
Action 6: Relocate NAVSUBSCOL Groton, CT, to SUBASE Kings Bay, GA.
Action 7: Consolidate NAVSUBSCOL Groton, CT, with SUBTRAFAC Norfolk, VA.
Action 8: Relocate CENSUBLEARNING Groton, CT, to SUBASE Kings Bay, GA.
Action 9: Consolidate NSGA Groton, CT, with NSGA Norfolk, VA.
Action 10: Consolidate the SSN intermediate repair function of Naval Submarine Support Facility New
London, CT, with TRF Kings Bay, GA.
Action 11: Consolidate the SSN intermediate repair function of Naval Submarine Support Facility New
London, CT, with SIMA Norfolk, VA.
Action 12: Consolidate the SSN intermediate repair function of Naval Submarine Support Facility New
London, CT, with NSY Norfolk, VA.
Action 13: Relocate the NAVOPMEDINST Pensacola, FL, function Naval Undersea Medical Institute
Groton, CT, to NAS Pensacola, FL, and Fort Sam Houston, TX.
Action 14: Disestablish NAVHLTHCARE NEW ENGLAND NEWPORT, RI, function Naval Ambulatory
Care Center Groton, CT. Relocate applicable support elements to Branch Medical Clinic Kings Bay GA and
NMC Portsmouth VA.
Action 15: Consolidate Naval Submarine Medical Research Laboratory, Groton, CT, with Naval Medical
Research Center, Walter Reed Army Medical Center - Forest Glenn Annex, Silver Spring, MD.
NOTE: Various Staff Personnel and/or Equipment relocated to NMC PORTSMOUTH VA, NAVSTA
NEWPORT RI, WPNSTA EARLE NJ, NSA CRANE IN, and WESTOVER ARB MA.

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\CR DON-0033B - COBRA 6[1].10 - 20 APR05 (FINAL VERSION).CBR
Option Pkg Name: DON-0033B Close SUBASE NLON CT; Subs to Norfolk & Kings Bay
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond

MilCon	38,343	95,515	15,883	64,908	203,619	0	418,269	0
Person	221	1,173	8,914	9,196	21,360	55,278	96,143	37,247
Overhd	11,246	11,619	14,437	13,820	22,052	31,292	104,467	26,641
Moving	154	3,932	12,202	694	8,422	28,231	53,635	0
Missio	0	0	147	8,383	8,383	8,383	25,296	8,383
Other	239	8,197	39,454	43,999	10,813	60,830	163,533	7,623
TOTAL	50,204	120,437	91,037	141,000	274,651	184,014	861,344	79,895

Savings in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
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MilCon	5,200	0	0	0	0	0	5,200	0
Person	2,318	7,950	28,268	35,292	54,104	124,401	252,334	169,315
Overhd	11,436	12,102	33,533	33,678	55,467	87,298	233,514	89,359
Moving	10	111	2,314	54	2,517	3,772	8,777	0
Missio	0	161	302	301	301	14,000	15,067	14,000
Other	0	0	0	0	502	525	1,027	0
TOTAL	18,964	20,325	64,417	69,326	112,891	229,995	515,919	272,674

Attachment 2: CR DON-0033B - COBRA CT Corrected Scenario.
This is the Navy's COBRA run adjusted to correct for the discrepancy between the number of Electric Boat (EB) Contractors eliminated in New London and the number of additional DoD personnel added in Norfolk and Kings Bay. This COBRA run also treated 50% of the SUBASE New London eliminated positions as transfers from New London to Norfolk and Kings Bay. This scenario adds the additional $133 million in one-Time Cost associated with KB Pier, dismantling, moving and reconstructing sub school and environmental analysis costs.

CR DON-0033B - COBRA CT Corrected Scenario.zip

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OneTime_Corrected.RPT	6/30/2005 1:38 PM	41177	95	1955
Overhead_Corrected.RP	6/30/2005 1:38 PM	13306	89	1422
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PersPerc_Corrected.RPT	6/30/2005 1:38 PM	12763	91	1200
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Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\CR DON-0033B - COBRA CT Scenario Rev 2.CBR
Option Pkg Name: DON-0033B Close SUBASE NLON CT; Subs to NFK & KB - CT Scen.
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Starting Year : 2006
Final Year : 2011
Payback Year : 2041 (30 Years)

NPV in 2025($K): 273,727
1-Time Cost($K): 809,094

Net Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	36,163	89,456	15,879	56,477	215,093	0	413,069	0
Person	-673	-1,829	-9,056	-11,407	-13,367	-19,515	-55,847	-31,855
Overhd	-38	-380	-2,262	-3,205	234	-1,865	-7,517	-8,577
Moving	190	3,964	10,363	628	6,405	33,914	55,464	0
Missio	0	-161	-155	8,081	8,081	-5,617	10,229	-5,617
Other	276	21,273	39,625	44,166	114,585	77,049	296,974	8,367
TOTAL	35,917	112,322	54,395	94,740	331,031	83,965	712,371	-37,683

	2006	2007	2008	2009	2010	2011	Total
POSITIONS ELIMINATED							
Off	1	4	11	0	11	39	66
Enl	22	12	44	1	44	218	341
Civ	0	18	20	1	20	311	370
TOT	23	34	75	2	75	568	777
POSITIONS REALIGNED							
Off	2	11	158	5	137	238	551
Enl	23	63	1,109	21	1,291	2,059	4,566
Stu	0	0	71	0	49	1,447	1,567
Civ	1	96	58	14	48	366	583
TOT	26	170	1,396	40	1,525	4,110	7,267

Summary:

Scenario Title: Close SUBASE New London, CT; Relocate submarines to NS Norfolk, VA and SUBASE
Kings Bay, GA - MODIFIED TO REFLECT CORRECTED CT ASSUMPTIONS
For the purpose of this Scenario Data Call, the following BRAC Actions are being considered for analysis:
Action 1: Close SUBASE New London, CT.
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personnel, equipment, and support.
Action 4: Relocate COMSUBGRU TWO from SUBASE New London, CT, to Naval Station Norfolk, VA.
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Action 7: Consolidate NAVSUBSCOL Groton, CT, with SUBTRAFAC Norfolk, VA.
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London, CT, with SIMA Norfolk, VA.
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London, CT, with NSY Norfolk, VA.
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Groton, CT, to NAS Pensacola, FL, and Fort Sam Houston, TX.
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Action 15: Consolidate Naval Submarine Medical Research Laboratory, Groton, CT, with Naval Medical
Research Center, Walter Reed Army Medical Center - Forest Glenn Annex, Silver Spring, MD.
NOTE: Various Staff Personnel and/or Equipment relocated to NMC PORTSMOUTH VA, NAVSTA
NEWPORT RI, WPNSTA EARLE NJ, NSA CRANE IN, and WESTOVER ARB MA.

CT SCENARIO ADJUSTMENTS

Eliminate Recurring Savings associated with EB Contractors at NLON.
Eliminate additional DOD Civilain Emplyees at KB and NFK associated wi. sub maintenance.
Reduce eliminated positions by 50%.
Increase Movement from NLON to KB & NFK to reflect transfers vs eliminated positions.
Increase One-Time Costs at KB assocated wi. Training, Pier, Refrigeration and Relocation of Personnel &
Equip.

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\CR DON-0033B - COBRA CT Scenario Rev 2.CBR
Option Pkg Name: DON-0033B Close SUBASE NLON CT; Subs to NFK & KB - CT Scen.
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	41,363	89,456	15,879	56,477	215,093	0	418,269	0
Person	676	2,906	11,437	12,654	26,147	65,790	119,611	75,859
Overhd	11,394	11,726	14,701	13,896	22,664	33,960	108,340	29,309
Moving	235	4,111	12,798	682	9,042	38,201	65,070	0
Missio	0	0	147	8,383	8,383	8,383	25,296	8,383
Other	276	21,273	39,625	44,166	115,087	77,574	298,001	8,367
TOTAL	53,944	129,472	94,587	136,258	396,416	223,909	1,034,587	121,918

Savings in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	5,200	0	0	0	0	0	5,200	0
Person	1,349	4,735	20,493	24,061	39,514	85,306	175,459	107,714
Overhd	11,432	12,106	16,962	17,101	22,430	35,825	115,857	37,886
Moving	45	147	2,434	54	2,637	4,288	9,606	0
Missio	0	161	302	301	301	14,000	15,067	14,000
Other	0	0	0	0	502	525	1,027	0
TOTAL	18,027	17,149	40,192	41,518	65,385	139,944	322,216	159,601

Attachment 3: CR DON-0033B - CT COBRA CT Corrected Scenario KB House NYLON Envir

This is identical to the previous scenario with additional $80 million in one-time costs for 800 Housing Units in Kings Bay and $125 million for environmental remediation in SUBASE New London.

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Detail_KBNLON.RPT	6/30/2005 2:57 PM	156011	95	7635
EIR_KBNLON.RPT	6/30/2005 2:57 PM	12352	91	1146
Error_KBNLON.RPT	6/30/2005 2:57 PM	604	35	395
InputDat_KBNLON.RPT	6/30/2005 2:57 PM	82664	88	10047
MilConAs_KBNLON.RPT	6/30/2005 2:57 PM	18797	87	2476
NPV_KBNLON.RPT	6/30/2005 2:57 PM	4745	73	1290
OneTime_KBNLON.RPT	6/30/2005 2:57 PM	41229	95	1951
Overhead_KBNLON.RPT	6/30/2005 2:57 PM	13318	89	1423
PersImp_KBNLON.RPT	6/30/2005 2:57 PM	36360	95	1904
PersSum_KBNLON.RPT	6/30/2005 2:57 PM	43187	93	3089
Summary_KBNLON.RPT	6/30/2005 2:57 PM	8016	69	2479
13 File(s)		**714,028**	**90%**	**69,543**

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\CR DON-0033B - COBRA CT Corrected Scenario.CBR
Option Pkg Name: DON-0033B Close SUBASE NLON CT; Subs to NFK & KB - CT Scen.
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Starting Year : 2006
Final Year : 2011
Payback Year : 2057 (46 Years)

NPV in 2025($K): 455,777
1-Time Cost($K): 1,014,094

Net Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	36,163	89,456	15,879	56,477	215,093	0	413,069	0
Person	-673	-1,829	-9,056	-11,407	-13,367	-19,515	-55,847	-31,855
Overhd	-38	-380	-2,262	-3,205	234	-1,865	-7,517	-8,577
Moving	190	3,964	10,363	628	6,405	33,914	55,464	0
Missio	0	-161	-155	8,081	8,081	-5,617	10,229	-5,617
Other	276	21,273	119,625	44,166	114,585	202,049	501,974	8,367
TOTAL	35,917	112,322	134,395	94,740	331,031	208,965	917,371	-37,683

	2006	2007	2008	2009	2010	2011	Total
POSITIONS ELIMINATED							
Off	1	4	11	0	11	39	66
Enl	22	12	44	1	44	218	341
Civ	0	18	20	1	20	311	370
TOT	23	34	75	2	75	568	777
POSITIONS REALIGNED							
Off	2	11	158	5	137	238	551
Enl	23	63	1,109	21	1,291	2,059	4,566
Stu	0	0	71	0	49	1,447	1,567
Civ	1	96	58	14	48	366	583
TOT	26	170	1,396	40	1,525	4,110	7,267

Summary:

Scenario Title: Close SUBASE New London, CT; Relocate submarines to NS Norfolk, VA and SUBASE
Kings Bay, GA - MODIFIED TO REFLECT CORRECTED CT ASSUMPTIONS
For the purpose of this Scenario Data Call, the following BRAC Actions are being considered for analysis:
Action 1: Close SUBASE New London, CT.
Action 2: Relocate SSNs from SUBASE New London, CT, to SUBASE Kings Bay, GA, to include required
personnel, equipment, and support.
Action 3: Relocate SSNs from SUBASE New London, CT, to Naval Station Norfolk, VA, to include required
personnel, equipment, and support.
Action 4: Relocate COMSUBGRU TWO from SUBASE New London, CT, to Naval Station Norfolk, VA.
Action 5: Disestablish COMNAVREG NE, Groton, CT. Realign Installation Management function to
COMNAVREG MIDLANT Norfolk, VA.
Action 6: Relocate NAVSUBSCOL Groton, CT, to SUBASE Kings Bay, GA.
Action 7: Consolidate NAVSUBSCOL Groton, CT, with SUBTRAFAC Norfolk, VA.
Action 8: Relocate CENSUBLEARNING Groton, CT, to SUBASE Kings Bay, GA.
Action 9: Consolidate NSGA Groton, CT, with NSGA Norfolk, VA.
Action 10: Consolidate the SSN intermediate repair function of Naval Submarine Support Facility New
London, CT, with TRF Kings Bay, GA.
Action 11: Consolidate the SSN intermediate repair function of Naval Submarine Support Facility New
London, CT, with SIMA Norfolk, VA.
Action 12: Consolidate the SSN intermediate repair function of Naval Submarine Support Facility New
London, CT, with NSY Norfolk, VA.
Action 13: Relocate the NAVOPMEDINST Pensacola, FL, function Naval Undersea Medical Institute
Groton, CT, to NAS Pensacola, FL, and Fort Sam Houston, TX.
Action 14: Disestablish NAVHLTHCARE NEW ENGLAND NEWPORT, RI, function Naval Ambulatory
Care Center Groton, CT. Relocate applicable support elements to Branch Medical Clinic Kings Bay GA and
NMC Portsmouth VA.
Action 15: Consolidate Naval Submarine Medical Research Laboratory, Groton, CT, with Naval Medical
Research Center, Walter Reed Army Medical Center - Forest Glenn Annex, Silver Spring, MD.
NOTE: Various Staff Personnel and/or Equipment relocated to NMC PORTSMOUTH VA, NAVSTA
NEWPORT RI, WPNSTA EARLE NJ, NSA CRANE IN, and WESTOVER ARB MA.

CT SCENARIO ADJUSTMENTS

Eliminate Recurring Savings associated with EB Contractors at NLON.
Eliminate additional DOD Civilain Emplyees at KB and NFK associated wi. sub maintenance.
Reduce eliminated positions by 50%.
Increase Movement from NLON to KB & NFK to reflect transfers vs eliminated positions.
Increase One-Time Costs at KB assocated wi. Training, Pier, Refrigeration and Relocation of Personnel &
Equip.

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\CR DON-0033B - COBRA CT Corrected Scenario.CBR
Option Pkg Name: DON-0033B Close SUBASE NLON CT; Subs to NFK & KB - CT Scen.
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	41,363	89,456	15,879	56,477	215,093	0	418,269	0
Person	676	2,906	11,437	12,654	26,147	65,790	119,611	75,859
Overhd	11,394	11,726	14,701	13,896	22,664	33,960	108,340	29,309
Moving	235	4,111	12,798	682	9,042	38,201	65,070	0
Missio	0	0	147	8,383	8,383	8,383	25,296	8,383
Other	276	21,273	119,625	44,166	115,087	202,574	503,001	8,367
TOTAL	53,944	129,472	174,587	136,258	396,416	348,909	1,239,587	121,918

Savings in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	5,200	0	0	0	0	0	5,200	0
Person	1,349	4,735	20,493	24,061	39,514	85,306	175,459	107,714
Overhd	11,432	12,106	16,962	17,101	22,430	35,825	115,857	37,886
Moving	45	147	2,434	54	2,637	4,288	9,606	0
Missio	0	161	302	301	301	14,000	15,067	14,000
Other	0	0	0	0	502	525	1,027	0
TOTAL	18,027	17,149	40,192	41,518	65,385	139,944	322,216	159,601

Attachment 4: CR DON-0033B - CT Corrected Scen. KB House NLON Envir EB Ovhd. This scenario is identical to previous scenario plus additional miscellaneous recurring cost of $50 million per year to reflect increased EB overhead that would be charged to the Navy if SUBASE New London is relocated.

Filepath: C:\Documents and Settings\loboj1\Local Settings\Temporary Internet Files\OLK2D

Name	Modiefied	Size	Ratio	Packed
CR DON-0033B - COBR/	7/14/2005 2:57 PM	nario KB H285944_ON Envi	88B Ovhd.CBR	33078
CR DON-0033B - COBR/	7/14/2005 2:57 PM	nario KB Ho25301_ON Envi	82B Ovhd.Out	4491
Deltas.RPT	7/14/2005 2:57 PM	11229	76	2734
Detail.RPT	7/14/2005 2:57 PM	159521	95	7685
EIR.RPT	7/14/2005 2:57 PM	12622	91	1188
Error.RPT	7/14/2005 2:57 PM	694	38	429
InputDat.RPT	7/14/2005 2:57 PM	84958	88	10162
MilConAs.RPT	7/14/2005 2:57 PM	19517	87	2519
NPV.RPT	7/14/2005 2:57 PM	2275	65	789
OneTime.RPT	7/14/2005 2:57 PM	42399	95	1990
Overhead.RPT	7/14/2005 2:57 PM	13588	89	1464
PersImp.RPT	7/14/2005 2:57 PM	37530	95	1951
PersPerc.RPT	7/14/2005 2:57 PM	13139	91	1244
PersSum.RPT	7/14/2005 2:57 PM	44087	93	3135
Summary.RPT	7/14/2005 2:57 PM	8319	69	2574
15 File(s)		**761,123**	**90%**	**75,433**

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\DON-0033 Subase NLON Scenario\CT Corrected KBNLON EB Overhead\CR DON-0033B - COBRA CT Corrected Scenario KB House NLON Envir EB Ovhd.CBR
Option Pkg Name: DON-0033B Close SUBASE NLON CT; Subs to NFK & KB - CT Scen.
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Starting Year : 2006
Final Year : 2011
Payback Year : Never

NPV in 2025($K): 1,080,180
1-Time Cost($K): 1,014,094

Net Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	36,163	89,456	15,879	56,477	215,093	0	413,069	0
Person	-673	-1,829	-9,056	-11,407	-13,367	-19,515	-55,847	-31,855
Overhd	-38	-380	-2,262	46,795	50,234	48,134	142,483	41,423
Moving	190	3,964	10,363	628	6,405	33,914	55,464	0
Missio	0	-161	-155	8,081	8,081	-5,617	10,229	-5,617
Other	276	21,273	119,625	44,166	114,585	202,049	501,974	8,367
TOTAL	35,917	112,322	134,395	144,740	381,031	258,965	1,067,371	12,317

	2006	2007	2008	2009	2010	2011	Total
POSITIONS ELIMINATED							
Off	1	4	11	0	11	39	66
Enl	22	12	44	1	44	218	341
Civ	0	18	20	1	20	311	370
TOT	23	34	75	2	75	568	777
POSITIONS REALIGNED							
Off	2	11	158	5	137	238	551
Enl	23	63	1,109	21	1,291	2,059	4,566
Stu	0	0	71	0	49	1,447	1,567
Civ	1	96	58	14	48	366	583
TOT	26	170	1,396	40	1,525	4,110	

7,267

Summary:

Scenario Title: Close SUBASE New London, CT; Relocate submarines to NS Norfolk, VA and SUBASE
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For the purpose of this Scenario Data Call, the following BRAC Actions are being considered for analysis:
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personnel, equipment, and support.
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Action 6: Relocate NAVSUBSCOL Groton, CT, to SUBASE Kings Bay, GA.
Action 7: Consolidate NAVSUBSCOL Groton, CT, with SUBTRAFAC Norfolk, VA.
Action 8: Relocate CENSUBLEARNING Groton, CT, to SUBASE Kings Bay, GA.
Action 9: Consolidate NSGA Groton, CT, with NSGA Norfolk, VA.
Action 10: Consolidate the SSN intermediate repair function of Naval Submarine Support Facility New
London, CT, with TRF Kings Bay, GA.
Action 11: Consolidate the SSN intermediate repair function of Naval Submarine Support Facility New
London, CT, with SIMA Norfolk, VA.
Action 12: Consolidate the SSN intermediate repair function of Naval Submarine Support Facility New
London, CT, with NSY Norfolk, VA.
Action 13: Relocate the NAVOPMEDINST Pensacola, FL, function Naval Undersea Medical Institute
Groton, CT, to NAS Pensacola, FL, and Fort Sam Houston, TX.
Action 14: Disestablish NAVHLTHCARE NEW ENGLAND NEWPORT, RI, function Naval Ambulatory
Care Center Groton, CT. Relocate applicable support elements to Branch Medical Clinic Kings Bay GA and
NMC Portsmouth VA.
Action 15: Consolidate Naval Submarine Medical Research Laboratory, Groton, CT, with Naval Medical
Research Center, Walter Reed Army Medical Center - Forest Glenn Annex, Silver Spring, MD.
NOTE: Various Staff Personnel and/or Equipment relocated to NMC PORTSMOUTH VA, NAVSTA
NEWPORT RI, WPNSTA EARLE NJ, NSA CRANE IN, and WESTOVER ARB MA.

CT SCENARIO ADJUSTMENTS

Eliminate Recurring Savings associated with EB Contractors at NLON.
Eliminate additional DOD Civilain Emplyees at KB and NFK associated wi. sub maintenance.
Reduce eliminated positions by 50%.
Increase Movement from NLON to KB & NFK to reflect transfers vs eliminated positions.
Increase One-Time Costs at KB assocated wi. Training, Pier, Refrigeration and Relocation of Personnel &
Equip.
Add $50 million per year to Misc. Recurring Costs starting in 2009 associated with EB Overhead no longer

supported by Subase NLON.

COBRA REALIGNMENT SUMMARY REPORT (COBRA v6.10) - Page 2/2
Data As Of 7/14/2005 2:52:43 PM, Report Created 7/14/2005 2:57:25 PM

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\DON-0033 Subase NLON Scenario\CT Corrected KBNLON EB Overhead\CR DON-0033B - COBRA CT Corrected Scenario KB House NLON Envir EB Ovhd.CBR
Option Pkg Name: DON-0033B Close SUBASE NLON CT; Subs to NFK & KB - CT Scen.
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	41,363	89,456	15,879	56,477	215,093	0	418,269	0
Person	676	2,906	11,437	12,654	26,147	65,790	119,611	75,859
Overhd	11,394	11,726	14,701	63,896	72,664	83,960	258,340	79,309
Moving	235	4,111	12,798	682	9,042	38,201	65,070	0
Missio	0	0	147	8,383	8,383	8,383	25,296	8,383
Other	276	21,273	119,625	44,166	115,087	202,574	503,001	8,367
TOTAL	53,944	129,472	174,587	186,258	446,416	398,909	1,389,587	171,918

Savings in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	5,200	0	0	0	0	0	5,200	0
Person	1,349	4,735	20,493	24,061	39,514	85,306	175,459	107,714
Overhd	11,432	12,106	16,962	17,101	22,430	35,825	115,857	37,886
Moving	45	147	2,434	54	2,637	4,288	9,606	0
Missio	0	161	302	301	301	14,000	15,067	14,000
Other	0	0	0	0	502	525	1,027	0
TOTAL	18,027	17,149	40,192	41,518	65,385	139,944	322,216	159,601

Attachment 5: DON-0004 The Navy COBRA run evaluating transfer of subs from NORFOLK to SUBASE New London. The Navy's analysis included a one time cost for acquisition of a new drydock for New London, incorrectly ignoring the fact that an available drydock currently under going rebuild at EB, would be available bin time for any transfers obviating the need for a new drydock. Interestingly, in DON-0033B the Navy met a perceived need for an incremental drydock at Norfolk not by building a new drydock but by having a drydock towed from a Washington base to Norfolk. The drydock and other corrections in Connecticut runs are described below.

DON-004 Navy.zip

7/18/2005 5:51:57 PM
Filepath: C:\Documents and Settings\loboj1\Local Settings\Temporary Internet Files\OLK2D

Name	Modiefied	Size	Ratio	Packed
Deltas.RPT	7/14/2005 1:58 PM	4995	74	1286
Detail.RPT	7/14/2005 1:58 PM	36188	91	3166
EIR.RPT	7/14/2005 1:58 PM	2299	75	575
FINAL NON-CR DON-00(	7/14/2005 1:58 PM	20461	81	3872
FINAL NON-CR DON-00(	7/14/2005 1:58 PM	12709	80	2548
InputDat.RPT	7/14/2005 1:58 PM	16519	77	3859
MilConAs.RPT	7/14/2005 1:58 PM	3309	73	903
NPV.RPT	7/14/2005 1:58 PM	2213	66	763
OneTime.RPT	7/14/2005 1:58 PM	9575	88	1169
Overhead.RPT	7/14/2005 1:58 PM	3215	77	727
PersImp.RPT	7/14/2005 1:58 PM	8478	87	1121
PersPerc.RPT	7/14/2005 1:58 PM	2301	73	631
PersSum.RPT	7/14/2005 1:58 PM	10270	89	1146
Summary.RPT	7/14/2005 1:58 PM	6746	74	1725
14 File(s)		**139,278**	**83%**	**23,491**

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\Norfolk to NLON\Navy\FINAL NON-CR DON-0004 20 APR 05.CBR
Option Pkg Name: DON-004 Realign NS Norfolk, VA; Relocate all 11 SSNs to SUBASE New London, CT
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Starting Year : 2006
Final Year : 2011
Payback Year : Never

NPV in 2025($K): 274,444
1-Time Cost($K): 144,036

Net Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	20,967	0	0	8,600	0	0	29,567	0
Person	-327	-4,788	-8,412	-8,412	-15,136	-25,104	-62,179	-25,104
Overhd	11,710	18,160	18,079	18,123	27,099	27,017	120,189	26,797
Moving	2,192	1,901	50	0	2,076	4	6,223	0
Missio	825	223	223	223	352	352	2,198	352
Other	3,675	96,818	5,466	3,466	5,102	5,099	119,627	5,099
TOTAL	39,041	112,315	15,406	22,001	19,493	7,369	215,625	7,144

	2006	2007	2008	2009	2010	2011	Total
POSITIONS ELIMINATED							
Off	7	12	0	0	4	0	23
Enl	18	25	0	0	168	0	211
Civ	37	29	0	0	37	0	103
TOT	62	66	0	0	209	0	337
POSITIONS REALIGNED							
Off	62	57	0	0	74	0	193
Enl	712	602	0	0	601	0	1,915
Stu	0	28	0	0	0	0	28
Civ	11	10	0	0	13	0	34
TOT	785	697	0	0	688	0	

2,170

Summary:

THIS SCENARIO WAS EVALUATED AT IEG ON THE 16 DEC 04 AS BEING COST PROHIBATIVE. DATA IS BASED ON CERTIFIED RESPONSES FROM "SCENARIO DON-004: Realign NS Norfolk, VA; Relocate all 11, 18 November".

Scenario Number: DON-0004
Scenario Title: Realign NS Norfolk, VA; Relocate all 11 SSNs to SUBASE New London, CT

For the purpose of this Scenario Data Call, the following BRAC Actions are being considered for analysis:

Action 1: Relocate 11 SSNs from Naval Station Norfolk, VA, to SUBASE New London, CT, to include
required personnel, equipment, and support.

Action 2: Consolidate SIMA Norfolk, VA, with Naval Submarine Support Facility New London, Ct, to support
the relocation of 11 submarines.

Action 3: Consolidate SUBTRAFAC Norfolk, VA, with NAVSUBSCHOOL Groton, CT.

Action 4: Consolidate NAVMEDCEN Portsmouth, VA, with NAVHEALTHCARE NEW ENGLAND Newport,
RI, function Naval Ambulatory Care Center, Groton, CT, to support the relocation of 11SSNs and
supporting assets from Naval Station Norfolk, VA to SUBBASE New London, CT.

Action 5: Consolidate NAVDENCEN MIDLANT Norfolk, VA, with NAVHEALTCARE NEW ENGLAND Newport, RI, function Naval Ambulatory Care Center, Groton, CT, to support relocation of 11 SSNs and
supporting assets from Naval Station Norfolk, VA to SUBBASE New London, CT.

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\Norfolk to NLON\Navy\FINAL NON-CR DON-0004 20 APR 05.CBR
Option Pkg Name: DON-004 Realign NS Norfolk, VA; Relocate all 11 SSNs to SUBASE New London, CT
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	20,967	0	0	8,600	0	0	29,567	0
Person	7,212	12,404	11,524	11,524	18,645	17,080	78,390	17,080
Overhd	13,598	22,263	22,181	22,226	33,201	33,119	146,587	32,898
Moving	3,590	3,102	50	0	3,347	4	10,092	0
Missio	825	223	223	223	352	352	2,198	352
Other	3,675	96,818	5,466	3,466	5,102	5,099	119,627	5,099

TOTAL	49,866	134,811	39,445	46,040	60,647	55,654	386,463
							55,429

Savings in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
	---	---	---	---	---	---	---	---
MilCon	0	0	0	0	0	0	0	0
Person	7,540	17,192	19,936	19,936	33,782	42,184	140,570	42,184
Overhd	1,887	4,103	4,103	4,103	6,101	6,101	26,399	6,101
Moving	1,398	1,201	0	0	1,270	0	3,869	0
Missio	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
TOTAL	10,825	22,496	24,039	24,039	41,154	48,285	170,838	48,285

Attachment 6: DON-004 CT Rev 1 - Navy COBRA Run adjusted to eliminate $95 million in 1-Time Costs for new Drydock ($93 mill. for drydock and $2 mill. in pier repair costs). Also changes timing of enlisted positions eliminated in NORFOLK to match transfer of subs and adjusted Misc. Recurring costs associated with EB Contractors to match sub support positions eliminated in NORFOLK. Based on Navy experience in New London, 1 EB contractor can replace 1.6 military personnel—this run reflects reductions in personnel accordingly. NPV savings of about $55 million over the Navy study period (2005-2025).

DON-004 CT Rev 1 Files.zip

7/18/2005 5:52:49 PM
Filepath: C:\Documents and Settings\loboj1\Local Settings\Temporary Internet Files\OLK2D

Name	Modiefied	Size	Ratio	Packed
DON-004 Deltas Rev 1.R	7/14/2005 12:56 PM	5025	74	1296
DON-004 Detail Rev 1.RI	7/14/2005 12:56 PM	36323	91	3160
DON-004 EIR Rev 1.RPT	7/14/2005 12:56 PM	2314	75	581
DON-004 InputDat Rev 1	7/14/2005 12:56 PM	17372	76	4241
DON-004 MilConAs Rev	7/14/2005 12:56 PM	3339	73	911
DON-004 NPV Rev 1.RP	7/14/2005 12:56 PM	2228	66	759
DON-004 OneTime Rev	7/14/2005 12:56 PM	9620	88	1174
DON-004 Overhead Rev	7/14/2005 12:56 PM	3230	77	734
DON-004 PersImp Rev 1	7/14/2005 12:56 PM	8523	87	1131
DON-004 PersPerc Rev	7/14/2005 12:56 PM	2316	72	638
DON-004 PersSum Rev	7/14/2005 12:56 PM	10315	89	1154
DON-004 Summary Rev	7/14/2005 12:56 PM	7564	72	2118
FINAL NON-CR DON-00	7/14/2005 12:14 PM	12719	80	2536
FINAL NON-CR DON-00	7/14/2005 12:57 PMR	21420	80	4324
14 File(s)		**142,308**	**83%**	**24,757**

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\Norfolk to NLON\Conn Revision 1\FINAL NON-CR DON-0004 CT Revised 1.CBR
Option Pkg Name: DON-004 Realign NS Norfolk, VA; Relocate all 11 SSNs to SUBASE New London, CT
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Starting Year : 2006
Final Year : 2011
Payback Year : 2015 (4 Years)

NPV in 2025($K): -55,819
1-Time Cost($K): 49,041

Net Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	20,967	0	0	8,600	0	0	29,567	0
Person	-2,572	-11,114	-16,546	-16,546	-19,332	-25,186	-91,297	-25,186
Overhd	5,751	7,484	8,402	8,446	11,780	11,699	53,563	11,478
Moving	2,192	1,901	50	0	2,076	4	6,223	0
Missio	825	223	223	223	352	352	2,198	352
Other	3,675	3,818	3,466	3,466	5,102	5,099	24,627	5,099
TOTAL	30,838	2,312	-4,405	4,190	-22	-8,031	24,882	-8,256

	2006	2007	2008	2009	2010	2011	Total
POSITIONS ELIMINATED							
Off	7	12	0	0	4	0	23
Enl	70	65	0	0	77	0	212
Civ	37	29	0	0	37	0	103
TOT	114	106	0	0	118	0	338
POSITIONS REALIGNED							
Off	62	57	0	0	74	0	193
Enl	712	602	0	0	601	0	1,915
Stu	0	28	0	0	0	0	28
Civ	11	10	0	0	13	0	34
TOT	785	697	0	0	688	0	

2,170

Summary:

THIS SCENARIO WAS EVALUATED AT IEG ON THE 16 DEC 04 AS BEING COST PROHIBATIVE. DATA IS BASED ON CERTIFIED RESPONSES FROM "SCENARIO DON-004: Realign NS Norfolk, VA; Relocate all 11, 18 November".

Scenario Number: DON-0004
Scenario Title: Realign NS Norfolk, VA; Relocate all 11 SSNs to SUBASE New London, CT

For the purpose of this Scenario Data Call, the following BRAC Actions are being considered for analysis:

Action 1: Relocate 11 SSNs from Naval Station Norfolk, VA, to SUBASE New London, CT, to include
required personnel, equipment, and support.

Action 2: Consolidate SIMA Norfolk, VA, with Naval Submarine Support Facility New London, Ct, to support
the relocation of 11 submarines.

Action 3: Consolidate SUBTRAFAC Norfolk, VA, with NAVSUBSCHOOL Groton, CT.

Action 4: Consolidate NAVMEDCEN Portsmouth, VA, with NAVHEALTHCARE NEW ENGLAND Newport,
RI, function Naval Ambulatory Care Center, Groton, CT, to support the relocation of 11SSNs and
supporting assets from Naval Station Norfolk, VA to SUBBASE New London, CT.

Action 5: Consolidate NAVDENCEN MIDLANT Norfolk, VA, with NAVHEALTCARE NEW ENGLAND Newport, RI, function Naval Ambulatory Care Center, Groton, CT, to support relocation of 11 SSNs and
supporting assets from Naval Station Norfolk, VA to SUBBASE New London, CT.

Connecticut Corrections to DON Run:

1. Eliminate $93 million 1-Time Cost in 2007 for new Drydock in NLON. One is already available at EB.

2. Eliminate $2 million 1-Time Cost to repiar pier for new drydock. Using EB drydocks.

3. Modify schedule for elimination of enlisted billets at NFK to match movement of subs. Note that total
billets eliminated remains at 155.

4. Reduce the # of EB contractors added at NLON to match the # of sub support positions being
eliminated at NFK. This reduces the EB contractors from 240 in the DON-004 COBRA run to 97. This
adjustment also reflects the fact that 1 EB Contractor can replace 1.6 Military personnel. These emplyees
are priced out at the same rate as in the DON-004 run ($114,000 per yerson per year.)

Revision 1\FINAL NON-CR DON-0004 CT Revised 1.CBR
Option Pkg Name: DON-004 Realign NS Norfolk, VA; Relocate all 11 SSNs to SUBASE New London, CT
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	20,967	0	0	8,600	0	0	29,567	0
Person	7,420	12,564	11,524	11,524	18,282	17,080	78,394	17,080
Overhd	7,754	11,792	12,710	12,754	17,884	17,803	80,697	17,582
Moving	3,590	3,102	50	0	3,347	4	10,092	0
Missio	825	223	223	223	352	352	2,198	352
Other	3,675	3,818	3,466	3,466	5,102	5,099	24,627	5,099
TOTAL	44,231	31,499	27,973	36,568	44,966	40,338	225,576	40,113

Savings in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	0	0	0	0	0	0	0	0
Person	9,992	23,678	28,070	28,070	37,614	42,266	169,692	42,266
Overhd	2,003	4,308	4,308	4,308	6,104	6,104	27,133	6,104
Moving	1,398	1,201	0	0	1,270	0	3,869	0
Missio	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
TOTAL	13,393	29,187	32,378	32,378	44,988	48,370	200,694	48,370

Attachment 7: DON-004 CT Rev 2 - Rev 1 changes plus reduces the number of enlisted transfers to NLON used in Don 004 by 136 enlisted billets that are not currently filled in NORFOLK (101 in 2006 and 25 in 2007.) Also increases the number of eliminated positions at NORFOLK to reflect these unfilled billets that don't have to be filled. Run shows results in increase of NPV savings over Rev 1. NPV savings for Rev 2 are $ 230 million through 2025.

DON-004 CT Rev 2 Files.zip

7/18/2005 5:53:02 PM
Filepath: C:\Documents and Settings\loboj1\Local Settings\Temporary Internet Files\OLK2D

Name	Modiefied	Size	Ratio	Packed
DON-004 Deltas CT Rev	7/14/2005 1:11 PM	5025	74	1297
DON-004 Detail CT Rev	7/14/2005 1:11 PM	36323	91	3162
DON-004 EIR CT Rev 2.R	7/14/2005 1:11 PM	2314	75	582
DON-004 InputDat Rev 2	7/14/2005 1:11 PM	17687	75	4337
DON-004 MilConAs Rev	7/14/2005 1:11 PM	3339	73	909
DON-004 NPV Rev 2.RP	7/14/2005 1:11 PM	2228	66	764
DON-004 OneTime Rev	7/14/2005 1:11 PM	9620	88	1178
DON-004 Overhead Rev	7/14/2005 1:11 PM	3230	77	733
DON-004 PersImp Rev 2	7/14/2005 1:11 PM	8523	87	1129
DON-004 PersPerc Rev	7/14/2005 1:11 PM	2316	73	635
DON-004 PersSum Rev	7/14/2005 1:11 PM	10315	89	1156
DON-004 Summary Rev	7/14/2005 1:11 PM	7873	72	2217
FINAL NON-CR DON-00	7/14/2005 1:11 PMBR	21806	80	4441
FINAL NON-CR DON-00	7/14/2005 1:11 PMut	12724	80	2564
14 File(s)		**143,323**	**82%**	**25,104**

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\Norfolk to NLON\Conn Revision 2\FINAL NON-CR DON-0004 CT Revision 2.CBR
Option Pkg Name: DON-004 Realign NS Norfolk, VA; Relocate all 11 SSNs to SUBASE New London, CT
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Starting Year : 2006
Final Year : 2011
Payback Year : Immediate

NPV in 2025($K): -229,829
1-Time Cost($K): 49,114

Net Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	20,437	0	0	9,130	0	0	29,567	0
Person	-7,085	-21,300	-27,862	-27,862	-30,648	-36,502	-151,262	-36,502
Overhd	5,583	7,276	8,194	8,249	11,584	11,502	52,389	11,282
Moving	2,008	1,856	50	0	2,076	4	5,994	0
Missio	825	223	223	223	352	352	2,198	352
Other	3,430	3,513	3,162	3,162	4,797	4,794	22,859	4,794
TOTAL	25,198	-8,432	-16,234	-7,098	-11,839	-19,849	-38,254	-20,074

	2006	2007	2008	2009	2010	2011	Total
POSITIONS ELIMINATED							
Off	7	12	0	0	4	0	23
Enl	171	90	0	0	77	0	338
Civ	37	29	0	0	37	0	103
TOT	215	131	0	0	118	0	464
POSITIONS REALIGNED							
Off	62	57	0	0	74	0	193
Enl	611	577	0	0	601	0	1,789
Stu	0	28	0	0	0	0	28
Civ	11	10	0	0	13	0	34
TOT	684	672	0	0	688	0	

2,044

Summary:

THIS SCENARIO WAS EVALUATED AT IEG ON THE 16 DEC 04 AS BEING COST PROHIBATIVE. DATA IS BASED ON CERTIFIED RESPONSES FROM "SCENARIO DON-004: Realign NS Norfolk, VA; Relocate all 11, 18 November".

Scenario Number: DON-0004
Scenario Title: Realign NS Norfolk, VA; Relocate all 11 SSNs to SUBASE New London, CT

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2. Eliminate $2 million 1-Time Cost to repair pier for new drydock. Using EB drydocks.

3. Modify schedule for elimination of enlisted billets at NFK to match movement of subs. Note that total
billets eliminated remains at 155.

4. Reduce the # of EB contractors added at NLON to match the # of sub support positions being
eliminated at NFK. This reduces the EB contractors from 240 in the DON-004 COBRA run to 97. This
adjustment also reflects the fact that 1 EB Contractor can replace 1.6 Military personnel. These employees
are priced out at the same rate as in the DON-004 run ($114,000 per yerson per year.)

5. Reduce Enlisted positions transferred from NFK to NLON by 101 in 2006 and 25 in 2007 to reflect
currently unfilled billets in NFK.

6. Increase the # of Enlisted positions eliminated in NFK by 101 in 2006 and 25 in

2007 to reflect currently
unfilled billets that would be eliminated in move to NLON.

COBRA REALIGNMENT SUMMARY REPORT (COBRA v6.10) - Page 2/2
Data As Of 7/14/2005 12:54:19 PM, Report Created 7/14/2005
1:11:13 PM

Department : Navy
Scenario File : \\files\users\Brian\My Documents\BRAC 2005\Norfolk to NLON\Conn Revision 2\FINAL NON-CR DON-0004 CT Revision 2.CBR
Option Pkg Name: DON-004 Realign NS Norfolk, VA; Relocate all 11 SSNs to SUBASE New London, CT
Std Fctrs File : \\files\users\Brian\My Documents\BRAC 2005\BRAC2005.SFF

Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	20,437	0	0	9,130	0	0	29,567	0
Person	7,068	11,719	10,579	10,579	17,337	16,135	73,417	16,135
Overhd	7,586	11,584	12,502	12,557	17,687	17,606	79,523	17,385
Moving	3,244	3,016	50	0	3,347	4	9,661	0
Missio	825	223	223	223	352	352	2,198	352
Other	3,430	3,513	3,162	3,162	4,797	4,794	22,859	4,794
TOTAL	42,590	30,057	26,516	35,651	43,520	38,892	217,226	38,667

Savings in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	0	0	0	0	0	0	0	0
Person	14,153	33,020	38,442	38,442	47,985	52,637	224,679	52,637
Overhd	2,003	4,308	4,308	4,308	6,104	6,104	27,133	6,104
Moving	1,236	1,161	0	0	1,270	0	3,668	0
Missio	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
TOTAL	17,393	38,488	42,749	42,749	55,359	58,741	255,480	58,741

CONNECTICUT DEPARTMENT OF ECONOMIC & COMMUNITY DEVELOPMENT TESTIMONY BEFORE THE BASE REALIGNMENT AND CLOSURE COMMITTEE JULY 6, 2005

OPENING REMARKS: CRITERION 6 & 7

Economic Impact on Connecticut - Criterion 6, 7 & 8:

- **Economic Impact on Connecticut**
  - **Connecticut has 1.2% of U.S. population**
  - **8,586 out of 12,684 (68%) jobs lost in the U.S. as a result of the DoD recommendations occur in Connecticut**
  - **Potential impact of $3.3B on Connecticut's already fragile economy with 31,500 + jobs lost**
  - **A generation to recover**

NOTES

BACKGROUND ON SPEAKERS
James F. Abromaitis, Commissioner, Connecticut Department of Economic and Community Development

James F. Abromaitis was appointed Commissioner of the Connecticut Department of Economic and Community Development on September 26, 1997.

Commissioner Abromaitis administers economic development and affordable housing programs for DECD, which is the lead agency for business and housing development related matters in the state. He has been instrumental in overseeing the state's Industry Cluster Initiative as well as coordinating all state and federal housing and community development programs within Connecticut.

In the year 2000 Commissioner Abromaitis was named the Outstanding State Executive of the Year by the Biotechnology Industry Organization.

Commissioner Abromaitis is an ex-officio member of the Board of Directors of the Connecticut Housing Finance Authority, Connecticut Innovations, Inc., the Connecticut Development Authority, and a number of other boards, commissions and foundations.

The Commissioner brings strong private sector and business management experience to public service. He held various management positions at Fleet Bank and the Connecticut Bank and Trust Company, including Vice President at both financial institutions. Prior to his banking career, Jim worked for Toyota Motor Corporation in

Tokyo. He also played professional basketball for six years in various countries around the world.

Commissioner Abromaitis earned a Bachelor of Arts degree in Urban Studies from the University of Connecticut in 1979. He also received a Master of Arts from the University of Connecticut in 1982 and is a 1987 graduate of the University of Oklahoma's National Commercial Lending School.

Commissioner Abromaitis' civic and charitable activities are many. He is a member of the University of Connecticut Board of Trustees and serves on several Trustee committees; a former President of the University of Connecticut Alumni Association; and a former member of the Board of Directors of Holy Cross High School in Waterbury.

Jeff Blodgett, Vice President of Research at Connecticut Economic Resource Center

Holds a master's degree in research design and statistical methods and is a frequent presenter at national and international conferences dealing with economic development research.

Mr. Blodgett has held a variety of research positions in both academia and government over the past 25 years, including affiliations with Yale University and the Connecticut Department of Education. Prior to joining CERC, he was the research director at the Connecticut Department of Economic and Community Development.

- Past president of the Hartford Area Business Economists (HABE)
- President of ACCRA, the national professional organization for economic development researchers.
- Board Member - New England Economic Project.

Commissioner Gina McCarthy, Connecticut Department of Environmental Protection.

Fomerly served as the Deputy Secretary of Operations within Governor Mitt Romney's Office for Commonwealth Development in Massachusetts.

25 years of environmental experience.

Received a Bachelor of Arts in Social Anthropology from the University of Massachusetts at Boston and a joint Master of Science in Environmental Health Engineering and Planning and Policy from Tufts University.

Commissioner McCarthy has an extensive list of notable accomplishments at the local and state level and has served on numerous state and national committees, including the Massachusetts Low Level Radioactive Waste Management Board, the

Massachusetts Renewable Energy Trust Advisory Board, and the New England Governor's Environment Committee.

BACKGROUND ON STRIKE FORCE

State Agencies

- Governor's Office
- Office of Policy and Management
- Department of Economic and Community Development
- Department of Environmental Protection
- Department of Labor
- Office for Workforce Competitiveness
- Military Department
- Department of Education
- Department of Veterans Affairs
- Connecticut Development Authority

Additional Organizations Providing Support

- SeCTer (Southeastern Connecticut Enterprise Region)
- CMEEC (Connecticut Municipal Electric Energy Cooperative)
- Northeast Utilities
- University of Connecticut – Center for Economic Analysis
- University of Connecticut – Center for Research, Survey and Analysis
- Connecticut Economic Resource Center
- Town of Groton
- Connecticut Department of Revenue Services
- Connecticut Department of Transportation
- Connecticut Department of Public Works
- Connecticut Department of Higher Education
- Connecticut Department of Public Safety
- Connecticut Department of Emergency Management and Homeland Security
- Office of Healthcare Access
- Western Connecticut State University
- Southeastern Connecticut Regional Planning Agency

CRITERION #6

Substantial Deviation from Selection Criterion 6:

- **Economic Impact Analysis Methodology is incomplete**
  - **The Region of Influence used does not equal the "Functional Economic Region"**
  - **Employment – Incomplete account of direct jobs**
    - **1,000 contractor jobs**
    - **2,950 spousal jobs**

NOTES

EIA Methodology is incomplete (See 6-A2)
In creating economic multipliers for their analysis the DOD converted military jobs into private sector jobs. This translation does not work. This methodology cannot yield usable/realistic multipliers.

- "Static" Model used (IMPLAN) misses Cumulative Impacts
- Closed Economy – no migration of capital or labor
- Measures only demand side effects
- Measure only short-term effects

The Region of Influence used does not equal the "Functional Economic Area".
The Region of Influence (ROI) is an artificially small region used in the impact assessment. Using this geographic definition excludes important economic linkages and impacts. Bottom line using this geographic definition understates the economic impact to Connecticut. (See 7-A3)

A Functional Economic Region is a geography in which an activity node generates over time a cluster of supporting activities (e.g., educated workforce) and supply chain. Information and technology spillovers in the region reinforce the competitive position of the node and its supporting network. See e.g., "A REVIEW OF THE FEDERAL ROLE IN REGIONAL ECONOMIC DEVELOPMENT," by Mark Drabenstott, Vice President & Director, Center for the Study of Rural America, Federal Reserve Bank of Kansas City, May 2005, http://www.kc.frb.org/RuralCenter/RuralStudies/FederalReview_RegDev_605.pdf

A UCONN survey (400) (all but two counties) captures data regarding the potential sub base closing's impact on individual Connecticut businesses. The survey strongly suggests that the ROI for the Groton Sub Base extends well beyond the New London MSA. The UCONN Survey results are reinforced by an on-line survey (75) conducted by DECD (all counties). (See 6-A4)

Incomplete account of direct employment - missing:

- All Contractors (1,000) (See 6-A6 and 6-A7)
- Working Spouses (2,950) (CT Department of Revenue Services)

Substantial Deviation from Selection Criterion 6:

Geographic Comparison

(Graphic)

The measurement system employed in Criterion 6 is different than the one used in Criterion 7

A Different definition of MSA was used in Criteria #6 than in #7

- Criteria #6 used OMB definition
- Criteria #7 used the 2000 Census definition

MSA/MHA Comparison (2000 Census definition of MSA)
New London MSA (New London County)
New London MSA 259,088 Pop
New London MSA 666 Square Miles
New London MSA Pop Density 389 people per Square Mile

New London MHA (New London & Windham Counties)
New London MHA 368,179 Pop
New London MHA 1,179 Square Miles
New London MHA Pop Density 312 people per Square Mile

Norfolk MSA (Norfolk, Virginia Beach, Newport News, VA-NC)
Norfolk MSA 1,569,541 Pop
Norfolk MSA 2,630 Square Miles
Norfolk MSA Pop Density 597 people per Square Mile

Norfolk MHA (Chesapeake, Currituck County, Fredericksburg, Isle of Wight, Norfolk, Portsmouth, Suffolk, Virginia Beach)
Norfolk MHA 1,090,283 Pop
Norfolk MHA 1,665 Square Miles
Norfolk MSA Pop Density 655 people per Square Mile

Jacksonville MSA 1,100,491 Pop
Jacksonville, FL MSA 2,636 Square Miles
Jacksonville MSA Pop Density 417 people per Square Mile

Kings Bay MHA (Camden, Charlton, Glynn Counties GA, and Nassau County FL)
Kings Bay MHA 179,177 Pop
Kings Bay MHA 2,485 Square Miles
Kings Bay MHA Pop Density 72 people per Square Mile

The measurement system employed was not applied consistently to all sub bases
The common denominator for NL, KB and Norfolk was the Military Housing Area (MHA).

Definition MHA: An MHA consists of a collection of zip codes within approximately 20 miles of the base or 1 hour commuting time that contain 80% of a base population that resides off base. In the case of NL the MSA was used instead of the MHA. Use of the MSA (for NL) limited the geographic area to NL County. Use of the MHA would have extended the area to include Windham County. In the case of KB the DOD used the MHA (because KB is not in an MSA), which expanded the area to include 4 counties.

Substantial Deviation from Selection Criterion 6:

- **Economic Impact Analysis Methodology is incomplete**
  - **Fiscal impacts – Not taken into account - $28M in unemployment compensation cost**
  - **Regional competitiveness**
    - **2.5% increase in unemployment insurance rate**
    - **Up to 3,000 additional jobs lost**
  - **Ignores synergy between public and private sectors**

NOTES

Fiscal Impacts not accounted for

- $28.0 million in unemployment payments (CT Department of Labor)
- State Loses Tax Revenue
  - Income Taxes
  - Sales Tax
  - Corporate Taxes
- Increased Municipal Costs
  - Loss of Federal Impact Aid – (Pupil subsidy)
  - Groton and the NL Sub Base received the Military Child Education Coalition 2005 Partnership for Excellence Award
  - Groton built its educational infrastructure to accommodate military dependents (which account for approximately 1/3rd of the school systems enrollment). The closure of the base will leave the city with underutilized facilities and the cost of maintaining those facilities.
- Replacement Cost Of Public Safety Services Provided By The Sub Base (Fire, HazMat)
- Healthcare costs will increase for veterans, retirees and their dependents

Regional Competitiveness

- Regional Cost of Unemployment Insurance Cost
  - 2.5% Rate Increase To all CT Businesses (CT Department of Labor)
  - 3,000 additional jobs lost due to higher business costs in Connecticut (UCONN-CCEA)

  This means for each job lost, employers would have to pay approximately $5,000 into the state's Unemployment Insurance Fund. Further, employers' rate of contribution to the Unemployment Insurance Fund would increase by about 2.5%, raising the cost of doing business in Connecticut for all of Connecticut's employers (not just those in the New London MSA).

- Synergy
  - Destabilizes the Naval Defense Industry Cluster
  - 6% of nation's population is w/in 100 mile radius of New London

Criterion #6 Supporting Attachments

6-A1. Greatest Impact on CT – "Closure and Realignment Impacts by State"

6-A2. Critique of JPAT Criterion 6 – UCONN Center for Economic Analysis, Stan McMillen, PhD.

6-A3. DoD Economic Impact Analysis Results

6-A4. Region of Influence Discussion Paper, UCONN Center for Economic Analysis Stan McMillen, PhD.

6-A5. University of Connecticut Survey

6-A6. Department of Economic & Community Development New London Sub Base Economic Impact Analysis: Executive Summary

6-A7. Department of Economic & Community Development New London Sub Base Economic Impact Analysis

6-A8. "Why Groton Is Wrong Base To Close", Daniel Goure, PhD.

6-A9. Testimony Opening Remarks – James Abromaitis, Commissioner, Connecticut Department of Economic & Community Development

6-A10. Criterion #6 & #7 Remarks – Jeffrey Blodgett, Connecticut Economic Resource Center

6-A1

Closure and Realignment Impacts by State

http://www.defenselink.mil/brac/pdf/Appendix_C_FinalUpdated.pdf

BRAC 2005 Closure and Realignment Impacts by State

State / Installation	Action	Out Mil	Out Civ	In Mil	In Civ	Net Gain/(Loss) Mil	Net Gain/(Loss) Civ	Net Mission Contractor	Total Direct
Connecticut									
SGT Libby U.S. Army Reserve Center, New Haven	Close	(14)	(7)	0	0	(14)	(7)	0	(21)
Submarine Base New London	Close	(7,096)	(952)	0	0	(7,096)	(952)	(412)	(8,460)
Turner U.S. Army Reserve Center, Fairfield	Close	(13)	(4)	0	0	(13)	(4)	0	(17)
U.S. Army Reserve Center Area Maintenance Support Facility Middletown	Close	(13)	(5)	0	0	(13)	(5)	0	(18)
Bradley International Airport Air Guard Station	Realign	(23)	(88)	26	15	3	(73)	0	(70)
Connecticut	**Total**	(7,159)	(1,056)	26	15	(7,133)	(1,041)	(412)	(8,586)

This list does not include locations where there were no changes in military or civilian jobs.
Military figures include student load changes.

zz Germany, Korea, and Undistributed									
Undistributed or Overseas Reductions	Realign	(14,889)	(2)	718	670	(14,171)	668	0	(13,503)
zz Germany, Korea, and Undistributed	**Total**	(14,889)	(2)	718	670	(14,171)	668	0	(13,503)
	Grand Total	**(133,769)**	**(84,801)**	**122,987**	**66,578**	**(10,782)**	**(18,223)**	**2,818**	**(26,187)**

This list does not include locations where there were no changes in military or civilian jobs.
Military figures include student load changes.

GREATEST IMPACT IS ON CONNECTICUT

68% OF THE CUTS OCCUR IN CONNECTICUT

Even though

CONNECTICUT HAS ONLY 1.2% OF THE U.S. POPULATION

- According to DoD's analysis Connecticut will lose 8,586 direct jobs from closure and realignment activities associated with the 2005 BRAC round.
- The DoD states that 26,187 net direct jobs will be lost as a result of all closure and realignment actives associated with the 2005 BRAC round.
- The DoD states that 13,503 of the net direct jobs lost will occur outside of the U.S.
    - 26,187 minus 13,503 equal 12,684.
- The DoD's analysis will eliminate 12,684 net direct jobs in the U.S
- Sixty Eight percent (68%) (8,586) of the12,684 net direct jobs lost in the U.S. as a result of the DoD recommendations occur in Connecticut.

CCEA
University of Connecticut

CRITIQUE OF JPAT CRITERION 6: ECONOMIC IMPACT OF BASE REALIGNMENT AND CLOSURE

University of Connecticut Center for Economic Analysis
Stan McMillen, PhD.

Challenge 1 ROI: As stated on page 1, Criterion 6, the region of a base's economic influence is the geography "...in the vicinity of military operations." The region in many cases is the MSA in which the base is situated. For the Groton sub base, this was the Norwich-New London, Connecticut MSA. We argue below that this is an artificially small region due to the firms in other parts of Connecticut that provide goods and services to sustain base operations. In general, the larger the region, the larger the impact (the multiplier) because the spillover effects reach further into the state economy. Small study areas have significant leakage, that is, they make significant payments to imports or value added sectors that do not in turn re-spend in the study area. [Here I would include a list of firms, their location and the dollar volume of their base-related business.] Further, there is no evidence in JPAT's methodology that the IMPLAN study area (ROI) employment data agrees with actual sub base personnel types (military, civilian, contractor, students) and counts. We do not know the IMPLAN data year used in JPAT's analysis and therefore cannot verify IMPLAN's study area employment data (or advanced institutional transfer data for SAM multipliers) with actual base employment and average wages (or institutional transfer) data. IMPLAN offers study area customization which then recalculates multipliers. **Failure to acknowledge the adequacy of the default IMPLAN model's study area data and/or update it represents a fundamental flaw in JPAT's methodology.**

Challenge 2 FTE vs BEA employment: On pages 3, 6 and 7, job changes are expressed as full time equivalents (FTEs). IMPLAN uses QCEW (formerly ES-202) employment data which is expressed as full and part time positions implying that the numerator at least in Appendix 2, Section 4c is incorrect. **This represents a flaw in JPAT's methodology.**

Challenge 3 Military occupations are not necessarily similar or analogous to civilian occupations: Indirect employment multipliers derive from output per worker by sector. JPAT recognizes that most I-O models do not have such data for military personnel (Appendix 2, Step 4). JPAT therefore mapped military occupational specialties (MOS) onto standard BLS occupations (SOC), thus making certain military occupations have equivalent private sector output per worker. Thus, beginning with 16,000 military occupational specialties, more than 13,000 were not mappable because they had no corresponding occupational specialty in the crosswalk table that maps MOS to SOC. With some work, JPAT mapped the MOSes to 334 SOCs (Appendix 2, Steps 4a, b). We have no reason to believe that military occupations, even if similar or analogous in some way to a private sector occupation, have the same output per worker in that occupation. **Thus, this methodology to develop indirect employment multipliers is fundamentally flawed.**

The SOCs have to be distributed into industrial sectors, as it is with the latter which multipliers associate. Normally, this would be a standard crosstab using SOC matrix software that the state's department of labor could perform; however, JPAT performed this distribution manually (Appendix 2, Step 4b). Furthermore, the distribution of occupations by industry is region-specific and there is no reference to the ROI for this estimation. **These represent additional fundamental flaws in that there is no cross check with a readily available crosstab and no region-specificity for occupation by industry.**

JPAT recognizes civilian and contractor contributions to economic impact and explicitly includes them in the calculation of indirect and induced multipliers for each base (Step 6), but earlier in Step 4e it is not clear how JPAT distributes civilian and contractor occupations into private sectors and therefore how it develops their respective indirect employment multipliers (they consume food, fuel, electricity and other goods and services the base buys from Connecticut businesses). **This hidden aspect of the indirect employment multiplier development represents another fundamental flaw in their methodology.**

Challenge 4 Contractors do not necessarily have the same occupational distribution as military occupational specialties: To develop induced multipliers for contractors, JPAT distributes these occupations across sectors using weights derived in Step 4c for military to private sector equivalents relative to total employment in the ROI. We see no reason why mission support contractors should follow the same occupational distribution as military occupations mapped to private sector occupations. **This represents another fundamental flaw in their methodology.**

Challenge 5 Induced multipliers are mis-specified: In Step 5, JPAT develops induced multipliers for military, civilian, contractor and student employees. Step 5a states that the induced multiplier is the IMPLAN "(Type N Multiplier – Type 1 Multiplier)." There is no Type N Multiplier in IMPLAN. It is possible that JPAT used the Type II or Type SAM multipliers, with the latter being more appropriate in that the SAM takes account of "all social accounting matrix information to generate a model that captures inter-institutional transfers. A model can be built that incorporates not only households, but also other institutions as well."[1] Further, IMPLAN states, "For households, the Type SAM multipliers use information about inter-institutional transfers to account for commuting, social security tax payments, as well as household income taxes and savings. Labor income is transferred to the factor account, which distributes the income to households who live in the region, social security taxes, and [to] households that live outside the region. Households that live in the region then make consumption expenditure with only disposable income as well as making payments to income taxes and savings."
"Similar multipliers can be derived to capture investment or any other institutions. For example, government can be included in the model if we think that government activity is directly linked to the local economy."

Furthermore, if the SAM multiplier was chosen, the IMPLAN multipliers reported depend on the institutions selected, for example state and local education and non-education sectors (and other) 'institutions'. **In this case (SAM), omitting the state and local education, non-education and investment institutional sectors is a fundamental flaw. This hidden aspect of the induced employment multiplier development represents another fundamental flaw in JPAT's methodology.**

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[1] IMPLAN User's Guide, Version 2, 1999, MIG, Inc. Stillwater, MN, www.implanpro.com, pages 171-172.

Challenge 6 Choice of model: IMPLAN is an inappropriate model to estimate economic impacts that evolve over time. The COBRA Realignment Summary Report (COBRA v6.09) – Page 1/2, Data as of 4/13/2005 4:02:41 PM, Report Created 4/13/2005 5:15:51 PM indicates positions eliminated and realigned commencing in 2006 with specifics each year through 2011. An economy adjusts to employment and other shocks through a variety of mechanisms related to relative price changes over time and perceived relative employment opportunity (or lack thereof). These mechanisms include capital-labor substitution (precluded in IMPLAN), changes in the composition of the labor force (and participation rates) as relative prices of goods and services and employment opportunities change in the region. Economic migration is affected by the employment shocks depicted in the COBRA report. These changes over time imply the need for a dynamic model that admits substitution, migration and global trade re-balancing. REMI is such a model and would be a better product to use in this case. Further, the increased unemployment in the region will cause all Connecticut firms to pay increased UI insurance. Members of military and non-military households who work in Connecticut's private sector would withdraw their labor, a supply side effect. REMI handles non-wage labor cost and labor supply changes. **Ignoring the economic dynamics and supply side impact of the proposed base closing forecloses an assessment of a more realistic economic impact as stipulated under Criterion 6 and represents another fundamental flaw in JPAT's methodology.**

Challenge 7 Synergies: In its effort to be uniform, JPAT ignored the rich linkages between the Groton sub base and the state in which it sits. In addition to procurement from all corners of the state, base personnel send their children to some of the best private schools in the country, military and non-military households supply labor to the private sector (from spouses and other household members) representing an ignored direct effect, and veterans obtain services not otherwise immediately available. The 2005 Retired Military Almanac (page 237) states there are 10,651 DoD retirees and 630 Coast Guard retirees in Connecticut many of whom depend on the military base for healthcare and other services. The Almanac (page 238) estimates that retired pay for this population is $14.35 million per month for DoD retirees and $1.045 million per month for USCG retirees. It is reasonable to expect that some members of this population will leave Connecticut if the sub base closes. JPAT ignored the economic consequences of (1) additional direct employment losses, (2) reduced consumption spending in the ROI and (3) healthcare-related hardships some veterans would face. **These omissions represent another fundamental flaw in JPAT's methodology.** [We have not mentioned remediation burdens or consequences of capital transfers (land, structures and equipment)].

DEPARTMENT OF DEFENSE ECONOMIC IMPACT ANALYSIS RESULTS

Department Of Defense Base Closure And Realignment Report, Volume I, Part 2 of 2: Detailed Recommendations, May 2005

Recommendation for Closure
Submarine Base New London, CT

Recommendation: Close Naval Submarine Base New London, CT. Relocate its assigned submarines, Auxiliary Repair Dock 4 (ARDM-4), and Nuclear Research Submarine 1 (NR-1) along with their dedicated personnel, equipment and support to Submarine Base Kings Bay, GA, and Naval Station Norfolk, VA. Relocate the intermediate submarine repair function to Shore Intermediate Repair Activity Norfolk, at Naval Shipyard Norfolk, VA, and Trident Refit Facility Kings Bay, GA. Relocate the Naval Submarine School and Center for Submarine Learning to Submarine Base Kings Bay, GA. Consolidate the Naval Security Group Activity Groton, CT with Naval Security Group Activity Norfolk, VA at Naval Station Norfolk, VA. Consolidate Naval Submarine Medical Research Laboratory Groton, CT, with Naval Medical Research Center at Walter Reed Army Medical Center Forest Glenn Annex, MD. Relocate Naval Undersea Medical Institute Groton, CT to Naval Air Station Pensacola, FL, and Fort Sam Houston, TX. Consolidate Navy Region Northeast, New London, CT, with Navy Region, Mid-Atlantic, Norfolk, VA.

Justification: The existing berthing capacity at surface/subsurface installations exceeds the capacity required to support the Force Structure Plan. The closure of Submarine Base New London materially contributes to the maximum reduction of excess capacity while increasing the average military value of the remaining bases in this functional area. Sufficient capacity and fleet dispersal is maintained with the East Coast submarine fleet homeports of Naval Station Norfolk and Submarine Base Kings Bay, without affecting operational capability. The intermediate submarine repair function is relocated to Shore Intermediate Maintenance Activity Norfolk at Norfolk Naval Shipyard, and the Trident Refit Facility Kings Bay, GA, in support of the relocating submarines. Consolidating the Naval Submarine Medical Research Laboratory

with assets at the Walter Reed Army Medical Center Forest Glenn Annex will create a DoD Center of Hyperbaric and Undersea Medicine that will increase synergy by consolidating previously separate animal and human research capabilities at a single location. The consolidation of Navy Region, Northeast with Navy Region, Mid-Atlantic is one element of the Department of the Navy efforts to reduce the number of Installation Management Regions from twelve to eight. Consolidation of the Regions rationalizes regional management structure and allows for opportunities to collocate regional entities to align management concepts and efficiencies.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is $679.6M. The net of all costs and savings to the Department during the implementation period is a cost of $345.4M. Annual recurring savings to the Department after implementation are $192.8M with a payback expected in three years. The net present value of the costs and savings to the Department over 20 years is a savings of $1,576.4M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 15,808 jobs (8,457 direct jobs and 7,351 indirect jobs) over the 2006-2011 period in the Norwich-New London, CT Metropolitan Statistical Area, which is 9.4 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: Naval Station Norfolk, VA is in Maintenance for Ozone (1-Hour) and Marginal Non-attainment for Ozone (8-Hour). An Air Conformity Determination may be required. There are potential impacts for dredging; marine mammals, resources, or sanctuaries; threatened and endangered species; and water resources. Naval Shipyard Norfolk, VA, has the same air status as Naval Station Norfolk. There may be similar water resource impacts. Submarine Base Kings Bay, GA, is in Attainment. There are potential impacts for dredging; marine mammals, resources, or sanctuaries; threatened and endangered species; and water resources. Naval Air Station Pensacola, FL, is in Attainment. There are potential impacts to cultural, archeological, tribal resources; waste management; and wetlands. Walter Reed Medical Center-Forrest Glen Annex, MD, is in Severe Non-attainment for Ozone (1-Hour and 8-Hour) and an Air Conformity Determination will be required. There are potential impacts to land use constraints or sensitive resources, and wetlands. Fort Sam Houston, TX, is in Attainment. There are potential impacts to cultural, archeological, tribal resources; threatened and endangered species; and water resources. No impacts are anticipated for the remaining resource areas of noise; or waste management. This recommendation indicates impacts of costs at the installations involved, which reported $11.3M in costs for waste management and environmental compliance. These costs were included in the payback calculation. Naval Submarine Base New London, CT, the closing installation, reports $23.9M in costs for environmental restoration. Because the Department has a legal obligation to perform environmental restoration regardless of whether an

installation is closed, realigned, or remains open, this cost is not included in the payback calculation. The aggregate environmental impact of all recommended BRAC actions affecting the installations in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

University of Connecticut
Department of Public Policy

July 5, 2005

The University of Connecticut's Department of Public Policy recently conducted a survey of Connecticut businesses to assess the potential impact of the possible closure of the Naval Submarine Base New London (SUBASE NLON), located on the east side of Thames River in Groton. Businesses in the six counties closest to the base were surveyed and New London County businesses were oversampled to allow for more detailed analysis of the immediate area.

The survey found that more than a quarter (26%) of New London County businesses do business directly with the Submarine Base compared to a rate of 6% of all businesses surveyed. Of the New London County businesses that do business directly with the Submarine Base, 20% conduct more than a quarter of the their overall business with the base.

The vast majority of New London County businesses have indirect business with the Submarine Base, either through transactions with suppliers or personnel. Fully 84% of New London County businesses report at least some indirect business with the base and 12% conduct more than a quarter of their total business through indirect relationships with the base. The two other eastern Connecticut counties, Tolland and Windham, also report a significant amount of indirect business with the Submarine Base as 23% of Tolland businesses and 21% of Windham businesses report indirect business. Middlesex (24%) and Hartford (15%) county businesses also report significant indirect business.

A majority (57%) of New London County businesses report that they would see a decrease in business if the Submarine Base were to close. Fifteen percent of business in the six counties report their overall business would decrease if the base were to close, with the highest level of businesses seeing a decline in Middlesex (24%) and Windham (21%), followed by Tolland (17%). Only 1% of companies reported a potential for increased business as a result of any base closing, and it should be noted that these included moving companies.

The impact of the base closure would result in layoffs for a number of businesses. New London County would be the hardest hit by these anticipated layoffs with nearly twenty percent of companies (18%) reporting that layoffs would occur. Middlesex County and Windham County would each see 9% of businesses hit by at least some layoffs.

Analysis of the overall impact in terms of business closures and relocations shows that 5% of business in New London and the 4% in Middlesex report they would be very likely to close at least one location if the Submarine Base were to close. These figures include 2% of companies in each county that would close entirely. An additional 10% of New London businesses report they would be somewhat likely to close a location or the entire organization if the base were to close.

New London and Middlesex counties would also see some business relocation if the Submarine Base were to close, with 2% and 4% of businesses reporting they would be very likely to relocate.

The survey was conducted using Dunn and Bradstreet and Info USA databases of businesses with 5 or more employees in Connecticut. The survey included Hartford, Middlesex, New Haven, New London, Tolland and Windham counties. Businesses were selected randomly.

6-A5

CCEA
University of Connecticut

REGION OF INFLUENCE DISCUSSION PAPER

University of Connecticut Center for Economic Analysis
Stan McMillen, PhD.

The Military Base's Region of Influence

As stated on page 1, Criterion 6, the region of a base's economic influence is the geography "...in the vicinity of military operations." The region of influence in many cases is the Metropolitan Statistical Area (MSA) in which the base is situated. For the Groton sub base, this is the Norwich-New London, Connecticut MSA. According to JPAT 6, Appendix 2, Step 3 (page 16), the definition of a MSA was taken from the Census 2003 definition and is composed of counties.[2] In Groton's case, this is New London County, Connecticut. We argue below that this is an artificially small region due to the location of Connecticut firms outside New London County that provide goods and services to sustain base operations. In general, the larger the region, the larger the economic impact (the multiplier) because the spillover effects reach further into the regional economy. Small study areas have significant leakage, that is, they make significant payments to imports or value added sectors that do not in turn re-spend in the study area. In the case of the Groton sub base, the economy supporting base operations evolved over a century as specialized firms and workers came into being and refined their skills and specialties as the military and other needs (e.g., medical, construction, educational) changed over time. That is, an industry cluster formed that contains the specialized technologies, processes and labor necessary to support base operations.

Once industries (in this case the military base and its supporting cluster) choose locations, usually in urban areas, they stay long capitalizing on the specialized and high quality workforce available in the region. Workers in these industrial clusters share information and ideas on many levels and they all profit. Such network externalities foster mass production through scale

[2] http://www.census.gov/population/estimates/metro-city/03mfips.txt

economies, encourage cluster growth and diversification through the availability of specialized input services to production; they foster a highly specialized labor force and the production of new ideas (technology) and human capital creation (through higher education), and, the presence of highly developed infrastructure.[3] Cities such as Groton, New London and Norwich, Connecticut and Providence, Rhode Island provide the natural venue for intense interpersonal contact, and for the diversity of activity, religious, cultural and artistic that fosters the creation of new ideas. Richard Florida has updated this idea with his 'creative class' that makes cities highly competitive and exciting places to live.[4] The creative class consists of engineers, artists, scientists, information technology workers, and, indeed, technology workers in all sectors (biotech in New London County is one example). In cities where they mix and experience diversity in race, culture, and lifestyle, the creative class generates ideas that foster technological and cultural growth, and thus, further the development of human capital that is vital in today's knowledge economy.

To the extent that information is complementary, its impact varies directly: in strictly independent knowledge exchange (one with no complementarity), one firm or person can passively absorb information and ideas floating around without revealing its or her own knowledge. There are no joint gains from mutual exchange. Aydogany & Lyonz (2004) state: "in 'complementary' knowledge exchange, there is an interaction that generates new insights and joint benefits not recognized by either party prior to the encounter, but only if both parties actively exchange their knowledge. In this type of exchange, both parties gain from a mutual revelation of information, and the whole is greater than the sum of the parts."[5] Further, "When complementarities are large, knowledge exchange is facilitated when firms have the ability to meet in a central location, thereby economizing on travel costs. When complementarities are small, however, a tradeoff emerges in the use of a central location." These observations suggest that firms with similar functions, processes and output (goods and/or services) may be better off co-locating in an urban area that facilitates productive information exchange. Such exchange builds specialized and highly productive human capital that firms value and allows them to increase their scale and scope[6] relative to firms in exurban areas or to firms that have dispersed operations.

The Region of Influence Should Be A "Functional Economic Region".

The Groton sub base Region of Influence (ROI) is an artificially small region (New London County) for the economic impact assessment. This definition excludes important economic linkages and impacts beyond New London County as evidenced by two surveys of firms supporting base operations.[7] (See 6-A4) The surveys strongly suggest that the ROI for the Groton Sub Base extends well beyond the Norwich-New London MSA. In fact, given its proximity to Rhode Island and ad hoc evidence of Rhode Island firms that support base

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[3] These ideas were crucial to Alfred Marshall ([1890], 1920, chap. X) for agglomeration to occur and be sustainable.

[4] Florida, R. (2003). "Cities and the Creative Class," *City & Community*, 2:1, March, http://www.creativeclass.org/acrobat/florida.pdf. Other working papers on the subject are at: http://www.creativeclass.org/_flight_writings.shtml.

[5] Aydogany, N. and Thomas P. Lyonz (2004). "Spatial Proximity and Complementarities in the Trading of Tacit Knowledge," Working Paper, http://econwpa.wustl.edu/eps/mic/papers/0404/0404004.pdf.

[6] Chandler, Alfred (1994). Scale and Scope: The Dynamics of Industrial Capitalism, The Belknap Press of Harvard University Press, Cambridge, MA.

[7] The first is an online survey (http://www.ct.gov/ecd/cwp/view.asp?a=1115&q=292890); the second is a University of Connecticut Department of Public Policy phone survey of 404 businesses in six Connecticut counties. A summary of the surveys appears in the Appendix.

operations, the restriction of the economic impact to New London County is unwarranted and downwardly biases economic impact results.[8]

A Functional Economic Region is a geography in which an activity node (core economic activity or driver) generates over time a cluster of supporting activities (e.g., an educated and highly skilled workforce) and supply chain. Information and technology spillovers in the region reinforce the competitive position of the node and its supporting network. Mark Drabenstott, Vice President & Director, Center for the Study of Rural America, [9] summarizes (pages 33-47) the literature on regional economic growth and development with several examples and support the key points made above, namely, the emergence of clusters due to agglomeration and the diffusion of knowledge and innovation which spawned them. We contend these competencies gave rise to a region that has no peer in the research, development and production of state-of-the art submarine vessels. Moreover, the technologies that developed in support of submarines also support at a fundamental level (laser welding and advanced metal working) other defense and commercial industries (gas turbines, helicopters, space systems) in Connecticut.

Drabenstott (2005, page 62) points out that a functional economic region, "...may not align with the jurisdictional lines of state *or* local government. The key for [federal] development policy in the future is supporting functional economic regions, many of which will bear no relation to the lines that now demarcate political jurisdictions, such as cities and counties. Moreover, most functional economic regions are discovering that some level of scale or critical mass is important to competing in global markets. Thus, many regions will probably be of a size that is somewhere between the size of a county and a state—multi-county in many cases."

We conclude that the appropriate region of influence for the Groton sub base is the seven Connecticut counties (excluding Litchfield) and at least Washington County in Rhode Island.

Criterion 6 Geography is Different from Criterion 7 Geography

Criterion 6 uses the newest OMB definition for MSAs in the U.S.[10] OMB defines MSAs, MDs, Micropolitan Statistical Areas, NECTAs, and aggregations of these geographies. Census uses these definitions as the geography in which to aggregate statistics collected at the block and block group levels. The difference between JPAT 6 and JPAT 7 criteria is the year of the definition. JPAT 7 uses the 1999 definition (actually the 1990 definition) and JPAT 6 uses the 2003 definition (actually the 2000 definition). The definitions changed because of population changes that were likely aggregated from the block and block group levels to higher levels at which point the OMB changed the definitions of the geographies containing so many persons and a major city (defined on page 2 and top of page 3 in the document referenced in footnote 9). This is in most cases a county or collection of counties and Census 2000 data at the county level corresponds with OMB 2003 definitions. Using the newer definition of MSA in JPAT 6 lowers the economic impact relative to using the JPAT 7 definition *for all bases* because the region of influence in the latter is larger geographically than the former. *Moreover, the JPAT 7 methodology prescribes using Census 2000 data that corresponds with the latest OMD definitions while inserting that data into regions defined for the 1990 Census. This is simply incorrect.*

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[8] Simple experiments with IMPLAN show this.

[9] Drabenstott, Mark (2005). "A Review Of The Federal Role In Regional Economic Development," Federal Reserve Bank of Kansas City, May, http://www.kc.frb.org/RuralCenter/RuralStudies/FederalReview_RegDev_605.pdf

[10] http://www.whitehouse.gov/omb/bulletins/fy04/b04-03_appendix.pdf

Using the older definition of MSA in JPAT 7 increases the geographic area in which the receiving community is viewed. The larger the area reviewed, the greater the chance of the receiving community to satisfy the JPAT 7 requirements. With respect to the Groton sub base closure and/or realignment, this helps Kings Bay and Norfolk. The older definition of the Norwich-New London MSA includes parts of Middlesex, New London, and Windham counties in Connecticut and parts of Washington County, RI. The new definition contains only New London County. JPAT 6 consistently applies the latter definition for its ROI for economic impact. JPAT 7 consistently applies the former definition for its assessment of the "The ability of the infrastructure of both the existing and potential receiving communities to support forces, missions, and personnel." *An advantage accrues to the receiving communities in JPAT 7 terms relative to communities from which bases leave according to JPAT 6 terms. This is patently inconsistent and unfair.*

The fundamental issue here is that the Groton sub base by virtue of its age, has built up a network of sophisticated technologies and workforce in the region that extends beyond New London County and thus, in any case, restricting the economic impact to New London County is unrealistic.

THE CONTRIBUTIONS OF THE NEW LONDON NAVAL SUB BASE AND THE ELECTRIC BOAT COMPANY TO THE ECONOMIES OF CONNECTICUT AND SOUTHEASTERN CONNECTICUT

A Department of Economic and Community Development Economic Impact Analysis

EXECUTIVE SUMMARY

At the direction of Governor M. Jodi Rell, the Connecticut Department of Economic and Community Development (DECD) has conducted a study to estimate the contributions that the U.S. Naval Submarine Base New London in Groton Connecticut (New London Naval Sub Base) and the Connecticut operations of the Electric Boat Company make to the Connecticut and Southeastern Connecticut economies.

The New London Naval Sub Base is subject to the BRAC process, as are all domestic military installations. Connecticut has cause to be concemed as the New London Sub Base was considered for closing in previous BRAC rounds and competition for location or realignment of base operations is likely from a number of sites. This report presents the results of that analysis.

Introduction

The New London Naval Sub Base, located on the eastside of the Thames River in Groton, Connecticut, has been an integral part of Connecticut's maritime history dating back to 1868 when the State gave the Navy 112 acres of land along the Thames River to build a Naval Station. Since that time, the base has been fully operational during two world wars, the Korean and Vietnam conflicts, the Cold War stand off between the United States and Soviet Russia and most recently the Gulf War, the wars in Afghanistan and Iraq, and the international war on terror. Even though the nature of these conflicts has changed over the years, the U.S. submarine force continues to play a vital role in our national defense, and the New London Naval Sub Base is at the forefront of this changing mission. It has evolved into a unique facility that combines submarine operations with specialized training and cutting-edge submarine warfare research and development.

The co-location of the Sub Base with the Sub School and the various research and development tenant commands creates a synergistic effect that results in the "whole being greater than the sum of its parts." The close proximity of these entities results in the free flow of information and ideas that create greater operational efficiencies and enrich the educational environment. Further enhancing the capabilities, efficiencies and benefits of the Sub Base's configuration and location is its close physical and working relationship with the Electric Boat Company.

The U.S. Navy considers that Electric Boat, by virtue of its vast experience and innovation, is the world's premier resource for submarine technology. Electric Boat has maintained this position since designing the very first submarine for the U.S. Navy, HOLLAND, over one

hundred years ago. The experience and innovation offered by Electric Boat has been, and remains, the dominating influence in development of nuclear powered submarines in this modern era.

The inherent strength of Electric Boat derives in great measure from its enduring dedication to one product, for one customer. Electric Boat designs, builds, and supports submarines for the U.S. Navy. This dedication means that submarine technology is Electric Boat's number one priority. This dedication provides the U.S. Navy with the best submarines in the world.

The Contributions of the New London Naval Sub Base and the Electric Boat Company

While there has been a relationship between the operational submarines at New London Naval Sub Base and the ship designers and builders at Electric Boat, only in the last six years has the interdependence become essential to both facilities.

The Sub Base and its tenant commands depend on Electric Boat to provide the skilled tradespersons, supervision, and engineering support required to perform most Intermediate-level maintenance on the ships stationed there. Similarly, Electric Boat needs the work on the submarines at the Sub Base to maintain its skilled workforce above the "critical mass" level in the current submarine Low Rate Procurement (LRP) environment.

The results of this study confirm the fact that the New London Naval Sub Base and the Electric Boat Company are significant and critical parts of the Connecticut and Southeastern Connecticut economies.

The Navy's Sub Base in Groton, Connecticut, and Electric Boat, within short commuting distances of each other, work closely together to maintain the Navy's nuclear submarine force. This partnership is significant and can support not only scheduled routine maintenance and modernization, but also emergent or unscheduled work requiring technical expertise, depot level capabilities and a skilled resource-pool to accommodate surge requirements. The complementary Sub Base/Electric Boat Company relationship affords the government savings as well as efficiency and skilled resource flexibility, creating a synergy that is critical to the Navy and national defense.

Some Key Findings Are:

New London Naval Sub Base

- Contributes approximately $841 million to Connecticut's GSP on average annually.
- Increases personal income for Connecticut residents by approximately $431 million on average annually.
- Creates 6,794 direct jobs and approximately 2,537 indirect jobs in Connecticut.
- Contributes approximately $29 million in net new revenue to the state on average annually.

- Contributes approximately $519,000 in net new local/regional revenues on average annually.

Sub School

- Contributes approximately $434 million to Connecticut's GSP on average annually.
- Increases personal income for Connecticut residents by approximately $230 million on average annually.
- Creates 3,573 direct jobs and approximately 1,137 indirect jobs in Connecticut.
- Contributes approximately $16 million in net new revenue to the state on average annually.
- Contributes approximately $139,000 in net new local/regional revenues on average annually.

Combined New London Naval Sub Base and Sub School

- There are 7,800 military personnel stationed at the base and over 650 reservists drill there annually. The base employs 1,400 civilians and over 1,000 contractors. Annual military and civilian payroll is approximately $452,000,000. The main base currently occupies more than 687 acres with approximately 230 major buildings that have an approximate replacement value of $914,000,000.
- Contributes approximately $1.3 billion to Connecticut's GSP on average annually.
- Increases personal income for Connecticut residents by approximately $666 million on average annually.
- Creates 10,367 direct jobs and approximately 3,673 indirect jobs in Connecticut.
- Contributes approximately $44.7 million in net new revenue to the state on average annually.
- Contributes approximately $601,200 in net new local/regional revenues on average annually.

Note: Scenarios are not cumulative because they were run independently of each other within a dynamic model.

Electric Boat Company

- The company's Connecticut work force is approximately 8,750 employees: 8,250 at the Groton shipyard and 500 on-site at the New London Naval Sub Base. The Groton shipyard is a 2.9 million square foot facility.
- Contributes approximately $2.0 billion to Connecticut's GSP on average annually.
- Increases personal income for Connecticut residents by approximately $1.3 billion on average annually.
- Creates 8,250 direct jobs and approximately 9,208 indirect jobs in Connecticut.
- Contributes approximately $117.6 million in net new revenue to the state on average annually.
- Contributes approximately $6.4 million in net new local/regional revenues on average annually.

Study Mechanics

Two econometric models were used to estimate the contributions of the New London Naval Sub Base and the Electric Boat Company to the Connecticut and Southeastern Connecticut economies: the REMI Policy Insight model and the Federal Bureau of Economic Analysis's RIMS II multipliers.

Two different models were used in the preparation of this study in an effort to take advantage of the respective strengths and differences of each. The REMI Policy Insight™ Model provides a quantitative, dynamic, and theoretically based projection of the Sub Base, School, and the Electric Boat Company impacts on the economy over time. In this approach, a simulation is "run" using economic variable values as inputs. Then, the "difference" in the simulation forecast from the control forecast represents the "economic impact." The RIMS II modeling approach conveys the interaction among industries well, but is static, representing only a one-time effect rather than over a period of years. So annual averages in REMI Policy Insight™ Model are the closest comparable measure to the RIMS II multiplier effects if the latter were to persist in each successive year over time.

The effect of the closure of the New London Naval Sub Base would be an annual loss to the Connecticut and Southeastern Connecticut economies of approximately $1.3 billion in GSP and approximately 14,040 direct and indirect jobs. A loss of this magnitude would be disastrous for Southeastern Connecticut and certainly a heavy blow to Connecticut's overall economy.

Contribution Implications in Light of the Current Round of Base Realignments and Closures

The Department of Defense (DOD) is currently in the process of preparing its recommendations for the closure and realignment of existing U.S. military installations. These recommendations will be forwarded to the Base Realignment and Closure Commission (Commission) on or about May 16, 2005. Based on the DOD report the Commission will prepare its own

recommendations. The Commission will then forward their recommendations to the President. If approved by the President, the recommendations will be forwarded to Congress for legislative action.

The state has reason for concern, as the New London Naval Sub Base appeared on the base closure list in previous BRAC rounds.

In light of the possibility of a closure of the New London Naval Sub Base, it is additionally important to examine the unlikely but possible economic consequences associated with a closure of the facility on the Electric Boat Company. The Sub Base depends on the Electric Boat Company to provide the skilled tradespersons, supervision, and engineering support required to perform most Intermediate-level maintenance on the ships stationed there. Similarly, the Electric Boat Company needs the work on the submarines at the Sub Base to maintain its skilled workforce above the "critical mass" level in the current submarine Low Rate Procurement (LRP) environment.

The complementary Sub Base/Electric Boat Company relationship affords the government savings as well as efficiency and skilled resource flexibility, creating a synergy that is critical to the Navy and national defense. As such, the closure of the New London Sub Base would have the effect of eliminating from the local and state economies one of the largest employers in the county and the state and reduce the workload of the Electric Boat Company.

In summary, the data indicate that the joint contribution to the GSP of the combined New London Naval Sub Base, Sub School, and the Electric Boat Company is approximately $3.3 billion and approximately 31,500 jobs. A contribution of this magnitude is vitally important to Southeastern Connecticut and the state of Connecticut as a whole.

However, it should be noted that in a recent statement issued by John P. Casey, President of the Electric Boat Company to the Commissioner of DECD, Mr. Casey remarked, "*We have stated publicly on numerous occasions that Electric Boat fully intends to remain in business. We have a significant backlog with the Virginia Class submarine program as well as design and engineering work associated with a variety of Navy programs. We would be a somewhat different business if the Base were to be lost, however, we expect to remain the Navy's preferred provider of nuclear submarine capability.*"

THE CONTRIBUTIONS OF THE NEW LONDON NAVAL SUB BASE AND THE ELECTRIC BOAT COMPANY TO THE ECONOMIES OF CONNECTICUT AND SOUTHEASTERN CONNECTICUT

A Department of Economic and Community Development Economic Impact Analysis

At the direction of Governor M. Jodi Rell, the Connecticut Department of Economic and Community Development (DECD) has conducted a study to estimate the contributions that the U.S. Naval Submarine Base New London in Groton, Connecticut (New London Naval Sub Base) and the Connecticut operations of the Electric Boat Company make to the Connecticut and Southeastern Connecticut economies. This report presents the results of that analysis.

I. INTRODUCTION

The New London Naval Sub Base and Electric Boat Company are a significant part of the Connecticut and Southeastern Connecticut economies. The results of this study confirm this fact. The co-location of the New London Naval Sub Base and Electric Boat Company in New London County create synergies that provide enormous benefit to our nation's national defense and manufacturing base.

These two entities contribute approximately $3.3 billion to the state's Gross State Product (GSP) and are responsible for approximately 31,500 direct and indirect Connecticut jobs.

Purpose of Study

The primary purpose of this study is to estimate the contribution made by the New London Naval Sub Base and the Electric Boat Company's shipbuilding and ship maintenance operations to the economies of Connecticut and Southeastern Connecticut.

This study was designed to estimate the contributions of the New London Naval Sub Base and the Electric Boat Company to the Connecticut and Southeastern Connecticut economies. The process began with a review of the body of existing work that had been done in this area, primarily several impact studies that specifically address the New London Naval Sub Base and Sub School, the Electric Boat Company (or both) and/or the economic landscape of Southeastern Connecticut. (A brief summary of these studies is included in this report.) The DECD then developed an impact analysis methodology for measuring the subjects' economic contributions. Modeling scenarios were devised and the variables necessary to run simulations were selected. Data was collected from numerous sources and the analysis was conducted.

This report is not intended to make recommendations about the base itself or Electric Boat directly, nor is it intended to be an analysis of strategic advantages or political realities. Rather, its sole purpose is to provide an economic impact analysis (EIA) of two important assets to the regional and state economies.

Assumptions and Inputs

In an effort to estimate the contribution of the New London Naval Sub Base and the Connecticut operations of the Electric Boat Company, seven scenarios were developed and modeled using two different models, the Regional Economic Modeling, Inc. (REMI) Policy Insight™ model, and

the federal Bureau of Economic Analysis' Regional Input-Output Modeling System (RIMS II). Data to support these scenarios was collected from numerous sources and analyzed.

The scenarios modeled are as follows:

1. The contributions of the New London Naval Sub Base and the Naval Sub School.
2. The contribution of the New London Naval Sub Base.
3. The contribution of the Naval Sub School.
4. The contributions of the New London Naval Sub Base, Naval Sub School, and the Electric Boat Company.
5. The contributions of the New London Naval Sub Base, Naval Sub School, and the Electric Boat Company (with reduced activity).
6. The contribution of the Electric Boat Company.
7. The contribution of the Electric Boat Company (with reduced activity).

These scenarios were selected because they break the Naval Facility down into its major constituent components. This allows for the analysis of different combinations of activities, ultimately eliciting a range of impacts that represent the full spectrum of value that the state and local economies derive from the presence of the Naval facility and the Electric Boat Company.

Due to the unique and interdependent relationship between the New London Naval Sub Base and the Electric Boat Company, it is important to measure the contributions of each entity and their combined contribution. Two of the aforementioned scenarios examine the combined economic impact of the sub base and the company.

Sources for the supporting data include the New London Naval Base, the Electric Boat Company, the Sub Base Realignment Coalition, the U.S. Department of Defense (DOD) and publicly available documents.

II. REVIEW OF PREVIOUS STUDIES

The contributions of the New London Naval Sub Base and the Electric Boat Company have been measured by numerous studies over the years. **Note:** None of the data appearing in this section was used in the current estimation of the contribution of the New London Naval Sub Base and/or the Electric Boat Company.

A Summary of the Findings of Previous Economic Impact Studies of the New London Naval Sub Base and/or the Electric Boat Company.
The University of Connecticut's Connecticut Center for Economic Analysis (CCEA) prepared several studies from 1993 to 1995 examining the potential effects of spending and employment reductions that would be the result of the closure and/or realignment of the New London Sub Base. All of these studies employed the REMI Policy Insight Model, developed by Regional Economic Models, Inc., the "REMI" model.

Groton-New London Submarine Base Closing: An Economic Impact Study[1], *3/17/93*
This study examined the loss of 4,655 military positions at the New London Naval Sub Base. This loss was combined with the alternative of relocating 3,542 Orlando, Florida naval training positions to Connecticut for a net loss of 1,113 military positions and 1,114 civilian positions, or 2,227 "direct" jobs. Four cases were examined: (1) Gain Orlando/Previously "normal" defense expenditure reductions, (2) Gain Orlando/1993 expenditure level cuts, (3) No Orlando previously projected cuts, (4) No Orlando/1993 projected cuts. With Orlando, total State employment falls 2,714 by 2000. Without Orlando, employment drops by 8,414 (Cases I and III). With Orlando, jobs fall by 698 by 2000, and without Orlando by 2,201 (Cases II and IV).

Defense Spending Cuts in New London County: An Economic Impact Study[2], *5/11/93*
Having acquired, with DECD funding, the New London County REMI model, the CCEA examined the impact on New London County and Connecticut both in terms of job loss and population loss under four scenarios: "Worst case 1"—all known defense cuts and base closure resulting in 31,323 lost jobs (21% of New London County workforce); "Navy recommendation case 2" – all known defense cuts and base closure, but Orlando moves to Groton resulting in 26,122 lost jobs (17.6%); "status quo case 3" – retain the sub base but cut Electric Boat employment to 7,500 by 1997 resulting in 23,651 lost jobs (16%); "best case 4" – retain base with all known and planned cuts including the Electric Boat Company cuts resulting in a loss of 20,052 jobs (13.6%). All had "an enormous effect."

Navy's Recommendations for New London County to the BRAC Commission[3], *5/5/95*
In this study CCEA examined the impact of three realignment and closure scenarios. Case A: Navy recommendations are carried out in combination with already executed cuts and the Electric Boat Company, closing of the Naval Undersea Warfare Center, and transfer of the Naval Nuclear Training School to South Carolina. This results in 14,003 jobs lost and an $837 million reduction to GSP. Case B: same as Case A, but with the addition of the Training School transferred to Groton. This results in 11,020 jobs lost and a $916 million reduction to GSP. Case C: Only the NUWAC is closed. This results in the loss of only 2,015 jobs and an $89 million reduction in GSP.

More recently, in 2004 the Southeastern Connecticut Enterprise Region (seCTer) and the Southeastern Council of Governments contracted with Mt. Auburn Associates, PPSA, and CERC to prepare a *Comprehensive Economic Development Strategy* (CEDS) for the U.S.

Economic Development Administration. This report, while not specifically focused on the contribution of the New London Sub Base or the Electric Boat Company to the economy of southeastern Connecticut, does include the contribution of these two entities in its examination of the southeastern economic landscape. The authors of the study modeled the impact of the closure of the Sub Base using the IMPLAN econometric model. The results of their econometric analysis concluded that the "economic impacts associated with the closing of the Submarine Base would be quite severe and long lasting. Our analysis suggests that if both the base and the Electric Boat were to close, local impacts in New London would include the direct and indirect loss of $2.4 billion in industry sales, the direct loss of more than 15,000 jobs, as many as another 8,000 due to the ripple effect, and a 15 percent drop in the gross regional product."[4]

III. NEW LONDON SUB BASE HISTORY AND CHARACTERISTICS

History

The Naval Submarine Base New London is the Navy's first Submarine Base and is currently the home of the nation's "Submarine Force." In 1868, the State of Connecticut gave the Navy 112 acres of land along the Thames River to build a Naval Station. The base was originally used as a coaling station by Atlantic Fleet small craft, however on October 13,1915, the monitor Ozark, a submarine tender, and four submarines arrived in Groton and shortly there after additional submarines and support craft arrived and the facility was named as the Navy's first Submarine Base. Following World War I the Navy established schools and training facilities at the base.[5, 6]

Location

The New London Naval Sub Base is located on the eastside of Thames River in Groton, Connecticut, across from the city of New London. Although the base is physically located in Groton, Connecticut, the base originally had its main offices and housing in the larger city of New London, and hence was christened as Naval Submarine Base New London.[7]

The location of the Sub Base provides many benefits to the Navy. It is located in a "protected harbor" which offers protection from adverse weather. It is in close proximity to the Electric Boat Company – the leading submarine builder and servicer and it provides Naval personnel and their families access to a high quality of life.

Salary.com, a national Web site specializing in salary and compensation data, recently conducted a national survey to find the best and worst "U.S. cities in terms of affordability." The survey looked at "a variety of financial factors, ranging from median salaries to unemployment rates and the cost of living. Those factors determined this year's 'best and worst' rankings of what it termed 'profitable cities,' or <u>those places where workers can get more out of their paychecks</u>."[8]

Dan Malachowski of Salary.com asks the question: "Have you ever considered becoming a resident of the historic whaling port of New London, Connecticut?" He describes the community as follows: "An old colonial town founded in 1646, New London is set between New York and Boston and is home to the U.S. Coast Guard Academy, as well as Connecticut College." He goes on to state that, "this colonial gem is not stuck in the past. New London topped our list with salary ranges above the national average, a low cost of living, and a low unemployment rate."[9]

In contrast, San Diego, another city home to a naval facility, made it into the bottom five cities on the list because of its high cost of living.[10]

Land and Facilities

Along with 36 acres at Fife Park, the main base currently occupies more than 687 acres containing approximately 230 major buildings with an approximate replacement value of $914,000,000. The base also has over 530 acres of family housing comprised of 2,101 Navy housing units plus 75 units at the Navy Lodge and 12 barracks with 1652 units, plus 150 units at the Groton Chalet. The base is home to more than 70 tenant commands. Approximately 12,000 family members and 12,000 retirees utilize the bases facilities annually along with over 15,000 additional USA/USAF/USCG/USMC personnel. The base has a combined annual electricity/water/gas/sewer bill of $17,870,000.[11]

The base is also homeport to 1 Floating Drydock (ARDM-4) operated by Electric Boat, Naval Research-1, the Navy's Nuclear-Powered Research Submarine and the Naval Research -1 Support Ship.[12]

Personnel and Payroll
There are 7,800 military personnel stationed at the base and over 650 reservists drill there annually – which amounts to 167 full-time equivalent jobs in the economy (see methodology). The base employs 1,400 civilians and over 1,000 contractors. Annual military and civilian payroll is approximately $452,000,000.[13]

Submarines Stationed:
The base is homeport to 18 Nuclear Attack Submarines: [14]

- 14 LOS ANGELES Class (7 SSN-688 (2 VLS), 7 SSN-688I)
- 3 SEAWOLF Class (SSN-21)
- 1 VIRGINIA Class submarine – VIRGINIA (SSN-774)

Major Tenant Commands
There are more than 70 Tenant Commands located on the New London Sub Base. The major commands include:

- **Commander Navy Region Northeast**
  This command is "headed by a flag officer, exercises military command over and provides primary support to Navy shore installations from New Jersey to Maine. Falling within Northeast Region's area of responsibility are: Naval Submarine Base New London; Naval Air Station, Brunswick, Maine; Portsmouth Naval Shipyard, Kittery, Maine; Naval Weapons Station, Earle, NJ; Naval Air Engineering Station Lakehurst, NJ; Naval Support Unit Saratoga Springs, NY; and Naval Station Newport, RI."[15]

- **Commander Submarine Group TWO**
  This command is "headed by a flag officer, exercises command of Commander, Submarine Forces, U.S. Atlantic Fleet forces administratively assigned and operation control of units of other forces when assigned. The primary purpose of Group TWO is to provide support, maintain personnel and material readiness, standards and work for increased economy and efficiency."[16]

- **Naval Submarine Support Center**
  This command is "responsible to centralize administrative control and support functions, economize resources and provide a common pool of experts by providing complete functional support to the Squadron Commander of Submarine Squadrons TWO and FOUR, and Submarine Development Squadron TWELVE, in the areas of Administration, Medical, Legal, Chaplain, Supply, Combat Systems, Engineering, Communications, and operations."[17]

- **Submarine Squadron TWO**
  "Squadron TWO's mission is to carry out the assigned tasks designated by Commander Submarine Force U.S. Atlantic Fleet; to provide operation direction as well as administrative and logistic support to assigned ships."[18]

- **Submarine Squadron FOUR**
  The "Commander, Submarine Squadron FOUR's mission is to carry out the assigned tasks designated by Commander, Submarine Force, U.S. Atlantic Fleet and to provide operational and engineering support to assigned ships."[19]

- **Submarine Development Squadron TWELVE**
  "In addition to providing operational and engineering support to assigned ships, Squadron TWELVE is tasked as tactical development authority for Submarine Forces Atlantic and Pacific. This is a unique responsibility, which is dedicated to the formulation and improvement of submarine tactics and to the measurement of the effectiveness of the newest submarines."[20]

- **Naval Submarine Support Facility's**
  This command's "primary mission is direct support to submarines assigned to Squadrons TWO, FOUR and TWELVE. Visiting ships are often supported. NSSF is organized along the lines of an afloat submarine tender Intermediate Maintenance Activity and employs more than 1200 sailors and civilian specialists."[21]

- **Naval Submarine School**
  This command is the "oldest fleet functional school in the navy and the only Submarine training school in the Navy. Submarine School instructs over forty thousand Sailors annually in courses ranging from one day to over six months in length. As the "Center of Excellence for the Submarine Force" Submarine School conducts all levels of training for both officers and enlisted personnel."[22]

- **Naval Undersea Medical Institute**
  This command is "tasked with providing training in undersea medicine and radiation health to designated medical department personnel, and to provide technical support in matters related to undersea medicine and radiation health to naval operating forces and activities."[23]

- **Naval Ambulatory Care Center**
  "The Naval Ambulatory Care Center in Groton, Connecticut is an outpatient medical treatment facility that provides primary medical care and coordinates access to other levels of health care services for active duty, retirees and eligible family members entitled to care. Inpatient care and limited specialty care services are provided through a partnership agreement with local civilian hospitals."[24]

- **The Naval Submarine Medical Research Laboratory**
  This command "constitutes the Navy's only submarine platform designated medical research and development laboratory dedicated to the unique problems engendered by the operational submarine fleet. This Laboratory maintains a library, which constitutes one of the most complete libraries of submarine and diving information in the world."[25]

- **Naval Security Group Activity Groton**
  The "NSGA Groton provides cryptologic direct support systems installation, maintenance, and personnel augmentation support to U.S. Atlantic Fleet submarines."[26]

- **Meteorology and Oceanography**
  This command "provides meteorological support and services to local commands, and supports waterfront units with environmental services and products for training, underways, and deployments. The Component's website offers local and regional weather information, and updates on tropical cyclone warnings and base Conditions of Readiness status during hurricane season."[27]

Recent Activity and Current Situation
The Sub Base has recently completed numerous infrastructure improvements. Approximately $98.5 million in investments were made at the base in fiscal year 2004 and to date, an additional $50 million has been awarded for improvements in fiscal year 2005. Major projects included: Barracks Renovation, renovation of Warehouse B-33, and the construction of the new Navy Lodge.[28]

Lower Base
Improvements to the Lower Base include the conversion of Pier 17 North Conversion and Waterfront Re-capitalization efforts.[29]

The Pier 17 North Conversion project is a $1.4 million upgrade to pier 17 North to accommodate Virginia Class ships. Improvements to the pier include: new fendering, steel supports, electrical upgrades, jib cranes and bollards and mechanical systems. This project was 99% complete as of April 2005.[30]

The Waterfront Re-capitalization Project includes a $30 million upgrade to all Sub Base piers to accommodate Virginia Class. This project starts with the demolition of Piers 4, 6, and 13. A new pier will be built in the current area of Pier 6. As of April 2005 contracting was in final stages in Philadelphia. Work on this project is to commence in the summer of 2005.[31]

Maintenance dredging in areas between Pier 10, 12, and 13 as well as on the north and South sides of Pier 31 is to be completed in 2005.[32]

SUBSCOL Campus
In February 2005 the DOD announced that M. A. Mortenson Co., of Minneapolis, Minnesota, is being awarded a $13,167,000 contract for the construction of the new Mk10 Submarine Escape Trainer. It is anticipated that the ground breaking for the trainer will occur in August of 2005 and the project completed by May of 2007. This project provides approximately 22,800 SF of classrooms, mechanical, electrical, and other support space for the escape columns and escape hatches.[33]

Upper Base
Improvements to the Upper Base include new security gates, a new dental clinic, a new facility for IBU-22, the renovation of the Naval Ambulatory Care Center and a new public private housing venture.[34]

The new security gateway opened in November of 2004. The gate allows for four lanes of entering traffic under an 18-foot tall canopy and provides for commercial vehicle inspection at the gate rather than on the base. The project is phase one of a two-phase, $6.5 million design and build project begun in 2003 by James N. Gray Company of Kentucky. The second phase, Gate 1 renovations, has just begun and should be completed by fall 2005.[35]

The Navy Region Northeast and GMH Military Housing-Navy Northeast LLC entered into the Navy's newest and largest public-private venture (PPV) housing project in November of 2004 with the goal of providing quality and affordable housing for military families in the Northeast. The project privatized approximately 5,600 Navy homes spanning seven Naval installations, five states, and 13 communities. For the New London Naval Sub Base, some 2,100 existing Navy Family Housing homes have been turned over to GMH and many are part of a six year, $300 million Initial Development Plan (IDP). Under the New London Naval Sub Base IDP, more than 1,000 old homes will be razed, and replaced by more than 900 new homes. Additionally 275 homes will be renovated. The groundbreaking ceremony for this project was held in February of 2005.[36]

The Naval Sub Base, Submarine School And Various Tenant Commands

The co-location of the Sub Base with the Sub School and the various research and development tenant commands creates a synergistic effect that results in the "whole being greater than the sum of its parts." The close proximity of these entities results in the free flow of information and ideas that create greater operational efficiencies and enrich the educational environment.

The location of all of these functions in New London County also affords the base's naval personnel and their families access to the high quality of life available in southeastern Connecticut, including excellent schools, significant cultural and recreational amenities and, according to Salary.com, unmatched affordability.[37]

The Groton location also fosters the close working relationship between the base and the Electric Boat Company. This relationship produces both tangible and intangible synergistic efficiencies that provide enumerable benefits to the Navy and to U.S. national defense.

The proximity of the Electric Boat Company's facility on the eastside along with the company's unique Quonset Point, R.I. construction facility give the base a distinct synergy for Navy production and operations. The Electric Boat Company has a variety of docks reserved for shipbuilding, refitting and repair along with barges, including berthing barges for the personnel of vessels undergoing refitting or repair. For a century, the Electric Boat Company has been at the forefront of submarine technological development and innovation.

IV. CONTRIBUTION OF THE NEW LONDON SUB BASE AND SCHOOL TO THE CONNECTICUT AND SOUTHEASTERN CONNECTICUT ECONOMIES

Scenario 1 illustrates the combined contributions of the Navy Base and Sub School complexes. Scenarios 2 and 3 show the independent contributions of each.

Table 3: REMI Model Results Summary for the New London Naval Sub Base and Sub School

REMI Model Results Summary Table						
Scenario	Gross State Product ($ billions)	Personal Income ($billions)	Direct Employment	Indirect Employment	State Revenues ($ millions)	Local/Regional Revenues ($ millions)
1	$ 1.292	$ 0.666	10,367	3,673	$ 44.7	$ 0.601
2	$ 0.841	$ 0.431	6,794	2,537	$ 28.6	$ 0.519
3	$ 0.434	$ 0.230	3,573	1,137	$ 15.6	$ 0.139

Note: Scenarios are not cumulative because they were run independently of each other within a dynamic model.

Table 4: RIMS II Model Results Summary for the New London Sub Base and School

RIMS II Model Results Summary Table				
Scenario	Gross State Product ($billions)	Personal Income ($billions)	Direct Employment	Indirect Employment
1	$ 1.678	$ 0.839	10,367	6,517
2	$ 1.049	$ 0.525	6,627	3,931
3	$ 0.516	$ 0.258	3,573	1,624

GSP is productivity ($99,379) x Total Employment
Personal Income is 1/2 GSP

The results of Table 4 largely confirm the REMI Policy Insight™ model results in Table 3. Scenario 3 (the School alone) has the smallest economic impact. The relatively modest variation in magnitude of the impacts under each methodology is mostly attributable to the averaging of multipliers across industries. What is notable is that the size and relative order in both methodologies is consistent.

In summary, the data indicate that the contribution of the combined New London Sub Base and Sub School to the state's economy is approximately $1.3 billion in GSP and approximately 14,040 direct and indirect jobs.

V. THE ELECTRIC BOAT COMPANY

The Electric Boat Company is a subsidiary of the General Dynamics Corporation. The Electric Boat Company is part of General Dynamics' Marine Systems Group. The company's primary operations are the shipyard in Groton, Connecticut and the automated hull-fabrication and outfitting facility in Quonset Point, Rhode Island. The combined operations have a current workforce of approximately 11,300 employees. The company's Connecticut work force is currently 8,750 employees: 8,250 at the Groton shipyard and 500 on-site at the New London Naval Sub Base.[38]The Electric Boat Company's Groton shipyard is a 2.9 million square foot facility.[39]

Overview[40]

The U.S. Navy considers that Electric Boat, by virtue of its vast experience and innovation, is the world's premier resource for submarine technology. Electric Boat has maintained this position since designing the very first submarine for the U.S. Navy, HOLLAND, over one hundred years ago. The experience and innovation offered by Electric Boat has been, and remains, the dominating influence in development of nuclear powered submarines in this modern era.

The inherent strength of Electric Boat derives in great measure from its enduring dedication to one product, for one customer. Electric Boat designs, builds, and supports submarines for the U.S. Navy. This dedication means that submarine technology is Electric Boat's number one priority. Electric Boat is focused on what it does best, and only on what it does best. This dedication provides the U.S. Navy with the best submarines in the world.

Electric Boat designed the first nuclear submarine, NAUTILUS as well as the first strategic missile submarine, GEORGE WASHINGTON. Of the 19 nuclear submarine classes developed, Electric Boat designed 15, and shares design responsibility on one other, SEAWOLF, with Newport News. Electric Boat designed the nuclear propulsion plant in every submarine class, save one, and designed every single strategic missile submarine this nation has produced. Electric Boat pioneered the modular construction process, more than 20 years ago, and is now using the third generation improvement of this process on the Virginia Class and SSGN Programs

Of the 197 nuclear submarines delivered or under construction for the U.S. Navy, Electric Boat is responsible for 98. Six other shipyards are/were responsible for the remainder.

Electric Boat's design history and experience in building 16 lead ships in the nuclear era has produced a "world class" technology base in specialized areas such as propulsion plant design, structural acoustics, hydrodynamics, weapons handling, manufacturing, and modular construction.

Electric Boat's Groton shipyard occupies 118 acres along the Thames River in Groton, Connecticut supporting both new construction and maintenance activity.

New construction work centers around the Land Level Ship Construction Facility (LLSCF) built in the early 1970's to support the Trident ballistic missile submarine program. The LLSCF receives hull sections and modules from Quonset Point, assembles them into a completed submarine, and then positions the ship for float-off using electric/hydraulic transfer cars and a pontoon in the associated graving dock.

Two additional dry docks, piers and shops also support overhaul and repair activities for active submarines, primarily those assigned to the New London Naval Sub Base.

"COATS" stands for CCSM Off-hull Assembly and Test Site. The $11.5M facility for land-based integration and test of Virginia Class combat system modules and electronic equipment at the Groton shipyard was dedicated in July, 1999.

COATS represents a shipyard industry first. The Combat System Module is: fully assembled off hull and populated with non-propulsion electronics equipment; provides for controlled testing of the combat system module without impacting hull construction; and provides friendly shock environment for commercial electronics. Once the COATS test phase completes, the CCSM module is transported to the ship for insertion and integration with ship and hull systems.

Final hull assembly is accomplished at the Groton Shipyard. The Land Level Ship Construction Facility (LLSCF) is capable of launching and dry-docking submarines weighing up to 17,500 tons, and can receive individual hull sections and units weighing up to 1,400 tons using the Sea Shuttle transporter.

The LLSCF provides a controlled environment for the accurate alignment and fit-up of hull sections and modules. A rail-tracked grid embedded in the facility, and electro-hydraulic transfer cars, enables sections or the entire ship to be moved about the facility. Overhead cranes and covered utility pits provide efficient support for final assembly and outfitting activity.

After launch, approximately one year prior to ship delivery, waterborne testing and sea trials take place. This period is used to groom and test the ship's systems, train the Navy crew in their operation and maintenance, and eventually turn over the completed systems and compartments to the Navy. Along with the various dock trials, acoustic trials, and weapons launch tests, propulsion plant tests, and other waterborne evolutions, the ship typically undergoes three sea trials before delivery to the Navy.

Current Business

Virginia Program[41]

The VIRGINIA Class submarine was designed by Electric Boat. It is the latest class of advanced capability fast attack submarines to be designed and delivered to the United States Navy. From its inception, the challenge of the VIRGINIA Program was to find the optimum balance between capability and affordability.

The VIRGINIA Class has been designed with reconfigurable spaces and features that make it adaptable and responsive to the changing and evolving threat. The VIRGINIA is the first naval combatant to be designed to meet the Post Cold War challenges of a new, uncertain threat environment – those conflicts in the near shore littoral environment. It supports seven critical post Cold War missions: covert intelligence, surveillance and reconnaissance (ISR); anti-submarine warfare; special forces warfare; precision strike warfare; anti-surface ship warfare; mine warfare; and provides support for Joint Forces.

The VIRGINIA Class Design/Build (Integrated Product and Process Development) contract was the first of its type for a DOD Cat 1 acquisition program. At the time of the contract award in January, 1996, Electric Boat, with no precedent to follow, worked hand-in-hand with the Navy

and led the development of new tools, processes and procedures, and trained shipyard workforce and oversight organizations to promulgate the required cultural change in the entire submarine enterprise. VIRGINIA literally has raised the performance bar for submarine technology and shipbuilding management and is providing the model for shipbuilding of the future. One indication of our success was when we received the Pentagon's David Packard Award for acquisition excellence. It was the first U.S. Navy warship to be designed using advanced computer-aided design and visualization technology that supports integrated design and manufacturing from a single product model database.

Each ship of the Class is being constructed by both General Dynamics Electric Boat in Groton, Connecticut and Quonset Point, Rhode Island, and by Northrop Grumman Newport News in Newport News, Virginia. Construction is being accomplished under a unique co-production teaming agreement whereby the construction of the ship's 18 major modules has been assigned to respective yards and the delivery of each ship is alternated between each yard. Today, the class design is complete and the program is in low rate production at one ship per year. Electric Boat is the prime contractor for the entire construction program.

On October 12, 2004, the Electric Boat Company delivered the lead ship, U.S.S VIRGINIA (SSN774), just 3.5 months from a contract delivery date established over ten years earlier. The lead VIRGINIA, SSN774 was the first Electric Boat Company submarine delivery in 6 years - - and the first lead ship in 7 years. The second ship, SSN775, will be the first NGNN submarine delivery in 8 years – and the first lead ship delivered by them in 28 years.

Seawolf[42]

The SEAWOLF Program was designed to counter high performance Soviet submarines at the end of the Cold War. The need for a large number of SEAWOLF Class submarines was obviated by the collapse of the Soviet Union in 1989. Initially planned to be a 30 ship class, the program was reduced to three ships. The U.S.S JIMMY CARTER (SSN23) is the third and final SEAWOLF Class submarine. Following closely on the heels of the delivery of the U.S.S VIRGINIA, U.S.S JIMMY CARTER was delivered to the U.S. Navy on December 22, 2004. This marked the second delivery by Electric Boat in three months.

Differentiating the SSN23 from all other submarines is its Multi-Mission Platform (MMP), which includes a 100-foot, 2500-ton hull section that enhances payload capacity, enabling the ship to accommodate the advanced technology required to develop, test and deploy the next generation of weapons, sensors and undersea vehicles.

SSN23 MMP Design/Build program success has been unprecedented. Key to this success was the ability of experienced design and engineering personnel to roll off of VIRGINIA and immediately onto another major design program -- the MMP, a project as complex as the construction of an entire Los Angeles Class submarine. Beginning with a notion that was little more than a Power Point slide, Electric Boat moved from concept design, to completion of detail design in 29 months -- half the time historically needed to advance through this development cycle. Five months later, this unique 2,500-ton module was delivered to the Groton shipyard for assembly with the host ship.

SSGN[43]

Electric Boat is also the prime contractor for the conversion of four Trident SSBN submarines to SSGN configuration taking place at the Norfolk Naval Shipyard and at Puget Sound Naval Shipyard. This effort leverages Electric Boat's experience as the designer and sole builder of

Trident SSBN submarines. Trident SSGN conversion will provide key capabilities for covert strike and clandestine Special Operations Force (SOF) missions.

The SSGN will provide up to 154 Vertical Launch Weapons from missile tubes previously housing ballistic missiles. Additionally, the SSGN will include an enhanced VIRGINIA Class communications suite and a dedicated command and control space for better mission planning. The platform will also be modified to host two Special Operating Forces lockout chambers using dual Dry Deck Shelters and/or Advanced SEAL Delivery Vehicles. The reconfigured ship will be able to house 66 SOF personnel and provide a dedicated SOF command and control planning center. SSGN will also function as an experimental test-bed to develop innovative operations concepts and payload/sensor alternatives for incorporation on future submarines. The large missile tubes inherent on this platform provide the volume to demonstrate and deploy non-traditional submarine payloads in an operational environment. The use of SSGN as a test bed for future capability to be included in future undersea systems forms the foundation for the transformation of the submarine force into the future.

Life Cycle Support, Maintenance and Modernization[44]

Electric Boat provides centralized life-cycle support for U.S. Navy submarines and submersibles via an experienced design, construction and fleet support organization supporting all classes of submarines. Electric Boat provides on-site fleet support at Kings Bay, Bangor, Norfolk, Puget Sound, Groton and Portsmouth and fly away teams at other locations as requested. Support provided includes design, engineering, planning, maintenance, material procurement and installation services that directly support the safe and reliable operation of the U.S. submarine force.

Additionally, in 1998 the Electric Boat Company began re-establishing itself as a major depot level submarine maintenance, modernization and repair activity. Supporting that transition has been a robust engagement with NAVSEA, the Naval Shipyards and other field activities in the various initiatives supporting the Navy's ONE SHIPYARD concept. Fundamental to this engagement is Electric Boat's commitment to align its maintenance related processes with those of the Navy. Electric Boat is now performing depot level availabilities including Interim Dry Dockings (IDDs), Selected Restricted Availabilities (SRAs, Depot Modernization Periods (DMPs), and scheduled Pre-Inactivation Restricted Availabilities (PIRAs) of LOS ANGELES and SEAWOLF Class submarines in its Groton shipyard and at the Naval Submarine Base.

Much of the cost debate for naval ships has been focused on acquisition cost. A truer metric may in fact be total ownership, or total life cycle costs. Nuclear submarines inherently possess low total operating costs due to their minimal manning; and, they require no at-sea logistics train, no protective escorts, and little support infrastructure ashore. Today, technology advancements have led to the development of a life of the ship core, eliminating the need for major refueling overhauls on our attack submarines. On VIRGINIA, crew manning for at-sea operations, one of the key drivers of program life cycle cost, has been reduced by 12% from 134 to 118. In fact, on the VIRGINIA program, there has been a 30% reduction in total ownership cost from previous submarine classes.

Tango Bravo[45]

The Tango Bravo Program is a collaborative effort between the Defense Advanced Research Projects Agency (DARPA) and the United States Navy to execute a technology demonstration program to break through the "technology barriers" and enable innovative design options for a

future submarine. This effort is also aimed at decreasing platform infrastructure and the cost of the design and production of that future ship.

In October 2004, Tango Bravo proposals were sought in five technology demonstration areas: (1) shaftless propulsion, (2) external weapons stow and launch, (3) hull adaptable sonar array, (4) radical ship infrastructure reduction, and (5) reduced crew/automated attack center. Electric Boat was notified in March 2005, that they had been selected for three Tango Bravo contract awards, subject to successful negotiations. The $600 million programmed in the current Navy plan for an undersea superiority system could be used to advance these technologies and integrate them into a future VIRGINIA, or to start a design effort to produce a lower cost nuclear submarine. Combined, these technologies could lead to a complete re-architect of the submarine for the first time since the Nautilus. This new architecture could remove the constraints in present submarines imposed by the shaft line and torpedo room/torpedo tubes. The initiative also could provide for the insertion of new technologies to ensure submarine relevance in the future threat environment where it will deploy.

Spiral integration of these technologies, such as external weapons, could be developed in parallel with a new forward end. Shaftless propulsion, likewise, could become a design/build effort resulting in a new stern and engine room section. By continuing VIRGINIA production, ships of opportunity will provide an integrating platform.

Several studies have recently been conducted on future fleet architectures. All have recognized the enduring value of submarines for future naval operations. Furthermore, under all known force level scenarios, including the most recent Navy 30-Year Interim Report to Congress, procurement of 2 ships per year will be needed to maintain undersea superiority and replace the aging fleet of LOS ANGELES Class (SSN688 Class) attack submarines as they retire over the next several decades. The 30-Year report neglects to indicate a new SSBN/SSGN design will be needed in the next decade. Absent new design work, the submarine design industrial base will not be around to perform this effort.

Electric Boat/Naval Submarine Base Synergies[46]

While there has been a relationship between the operational submarines at the New London Naval Sub Base and the ship designers and builders at Electric Boat Corporation ever since the arrival of the tender *Ozark* and her charges in October 1915, only in the last six years has the interdependence become essential to both facilities.

The Submarine Base and its tenant commands depend on Electric Boat to provide the skilled tradespersons, supervision, and engineering support required to perform most Intermediate-level maintenance on the ships stationed there. Similarly, Electric Boat needs the work on the submarines at the Base to maintain its skilled workforce above the "critical mass" level in the current submarine Low Rate Procurement (LRP) environment.

Carrying the Navy's Regional Maintenance concept one step further, the Electric Boat Company has entered into extremely successful partnerships with the New London Naval Sub Base and Portsmouth Naval Shipyard (PNSY). While some of the relationships and activities are cemented in contractual terms and conditions, it is the genuine spirit of co-operation and joint dedication to Fleet readiness, which is most significant. Several specific initiatives are discussed below.

New England Maintenance Manpower Initiative (NEMMI)[47]
Starting in 1999, NEMMI has resulted in the phased transition of 431 non-submarine qualified military billets at the Naval Submarine Support Facility (NSSF) at the New London Naval Sub Base to 263 civilian Electric Boat Company shipyard employees. This has allowed non-submarine sailors to be reassigned to ships or stations other than at Groton, while the joint civilian / Navy workforce at NSSF still provides quality shore billets for submarine-qualified sailors. The Electric Boat Company is also now providing the equivalent of 4 divers to assist the Navy dive team.

The integrated workforce is responsible to Commanding Officer, NSSF for work completion and certification, but can draw on the resources of Electric Boat for surge capacity or unique skills and capabilities. Currently, the average Electric Boat Company journeymen at NSSF has over 24 years of shipbuilding experience - - a tremendous training environment for the assigned sailors.

Nuclear Regional Maintenance Department (NRMD)[48]
Implemented in March 2001, the Electric Boat Company is managing the New London Naval Sub Base nuclear repair work with a combined Electric Boat Company / military team. The Electric Boat Company provides a core staff of 27 responsible for planning and execution of work under the Electric Boat Company's nuclear license, and coordinates the activities of the 76 assigned military personnel.

The permanently assigned workforce is augmented as needed from the Electric Boat Company Groton shipyard to support major evolutions or periods of high workload. It is not uncommon to have 100 additional Electric Boat Company workers supporting NRMD activities. All assigned military and civilian personnel report to Electric Boat Company supervision.

Thames River Drydocks[47]
Prior to 2001, there were two floating drydocks at the New London Naval Sub Base, which supported short-term and emergent repair periods on the ships assigned to Groton. In addition, Electric Boat had three graving docks, which were needed to support the Cold War submarine production rate of up to three attack and one ballistic missile submarine per year. However, as the Electric Boat Company shifted to low rate production in the mid-90s, these three docks were significantly under-utilized.

In August 2001, the Navy inactivated the floating drydock Oak Ridge (ARDM-1) at the New London Naval Sub Base, avoiding the expense of an upcoming major overhaul of the 1944 vintage drydock. This left insufficient Navy drydock capacity for the volume of work. As a result, in February 2002 the Navy leased the use of one of the Electric Boat Company's drydocks. The dockings at the Electric Boat Company carried out to date under this contract have utilized New London Naval Sub Base, Electric Boat Company, Portsmouth Naval Shipyard, and other contractor personnel all working together to provide the best and quickest maintenance service. Due to the present high volume of maintenance work contracted directly to Electric Boat, this lease is not currently in effect, but can be resumed should the Navy require the asset.

This cooperative arrangement was carried a step further in July 2002, when the Electric Boat Company and the Navy entered into a Government-Owned / Contractor-Operated (GOCO) contract for the Electric Boat Company to maintain and operate Shipping Port (ARDM-4), the remaining Navy floating drydock at the New London Naval Sub Base. Thirty-six core Electric

Boat Company personnel reporting to Electric Boat Company supervision maintain and operate the Shipping Port on a day-to-day basis, while surge personnel from the shipyard support docking evolutions. The utilization rate for Shipping Port has been extremely high, with the 12 dockings to date resulting in a ship in dock over 75 percent of the time in FY03 and FY04, and a projected occupancy rate of over 90 percent in FY05.

Naval Submarine Base New London and Electric Boat Corporation[48]

The net result of these actions - - NEMMI, NRMD, and Drydocks - - is a balanced, flexible asset pool, which provides maximum service to the Fleet at minimum cost, while still supporting the construction of nuclear submarines. The number of sailors required has been dramatically reduced, there is more efficient utilization of facilities, the Navy has quick access to the capability and capacity resident at the Electric Boat Company, and critical skills are being maintained in the Electric Boat Company workforce.

In a recent statement issued by John P. Casey, President of the Electric Boat Company to the Commissioner of DECD, Mr. Casey remarked, "*We have stated publicly on numerous occasions that Electric Boat fully intends to remain in business. We have a significant backlog with the Virginia Class submarine program as well as design and engineering work associated with a variety of Navy programs. We would be a somewhat different business if the Base were to be lost, however, we expect to remain the Navy's preferred provider of nuclear submarine capability.*"[49]

The Navy's submarine base in Groton, Connecticut, and Electric Boat, within short commuting distances of each other, work closely together to maintain the Navy's nuclear submarine force. This partnership is significant and can support not only scheduled routine maintenance and modernization, but also emergent or unscheduled work requiring technical expertise, depot level capabilities and a skilled resource-pool to accommodate surge requirements. The complementary Sub Base/Electric Boat Company relationship affords the Government savings as well as efficiency and skilled resource flexibility, creating a synergy that is critical to the Navy and national defense.

VI. CONTRIBUTION OF THE ELECTRIC BOAT COMPANY TO THE CONNECTICUT AND SOUTHEASTERN CONNECTICUT ECONOMIES

The Electric Boat Company is also a critical part of the Connecticut and Southeastern Connecticut economies.

The Electric Boat Company in total represents approximately 17,458 jobs in Connecticut. "Direct" employment is 8,250. There are 500 more contractors working for the Electric Boat Company that are located onsite at the New London Naval Sub Base, for a total Connecticut job count of 8,750. Including these 500, there are a total of approximately 9,208 "indirect" (spin-off) jobs. However, the Electric Boat Company, in close proximity to the Sub Base and Sub School, is ultimately the source of employment for a total of 1,000 contractors in Connecticut's economy (500 at the base and 500 in "all industries" in work related to the Electric Boat Company and the base).

Moreover, the Electric Boat Company's annual average contribution to GSP is approximately $2.0 billion. GSP is the single most comprehensive statistic, other than the number of direct and indirect jobs. It measures the final product and services produced in the state in any given year. Even beyond these economic facts, the Electric Boat Company has a long and proud history of contribution to Connecticut.

Scenarios 6 and 7 measure the separate impact of Electric Boat alone and the contribution of a portion (in this case 1/2) of the current level of EB activity alone.

Table 3: REMI Model Results Summary for the Electric Boat Company

REMI Model Results Summary Table

Scenario	Gross State Product ($ billions)	Personal Income ($billions)	Direct Employment	Indirect Employment	State Revenues ($ millions)	Local/Regional Revenues ($ millions)
6	$ 1.968	$ 1.253	8,250	9,208	$ 117.6	$ 6.398
7	$ 1.001	$ 0.632	4,125	4,672	$ 59.8	$ 3.505

Table 4: RIMS II Model Results Summary for the Electric Boat Company

RIMS II Model Results Summary Table

Scenario	Gross State Product ($billions)	Personal Income ($billions)	Direct Employment	Indirect Employment
6	$ 1.549	$ 0.775	8,250	7,341
7	$ 0.775	$ 0.388	4,125	3,671

GSP is productivity ($99,379) x Total Employment
Personal Income is 1/2 GSP

VII. THE CONTRIBUTIONS OF THE NEW LONDON NAVAL SUB BASE, SUB SCHOOL AND THE ELECTRIC BOAT COMPANY TO THE ECONOMIES OF CONNECTICUT AND SOUTHEASTERN CONNECTICUT

Scenario 4 -- the single largest impact of all seven simulations -- dramatically demonstrates the enormous impact of the Navy Base and Sub School, combined with the Electric Boat Company. Scenario 5 shows the impact of the Navy Base and School together with a reduced (by ½) level of activity at the Electric Boat Company.

Table 5: REMI Model Results Summary for the New London Naval Sub Base, Sub School and the Electric Boat Company

REMI Model Results Summary Table

Scenario	Gross State Product ($ billions)	Personal Income ($billions)	Direct Employment	Indirect Employment	State Revenues ($ millions)	Local/Regional Revenues ($ millions)
4	$ 3.253	$ 1.982	18,617	12,881	$ 162.2	$ 5.764
5	$ 2.299	$ 1.301	14,492	8,407	$ 104.9	$ 2.922

Table 6: RIMS II Model Results Summary for the New London Naval Sub Base, Sub School and the Electric Boat Company

RIMS II Model Results Summary Table

Scenario	Gross State Product ($billions)	Personal Income ($billions)	Direct Employment	Indirect Employment
4	$ 3.368	$ 1.684	18,617	15,275
5	$ 2.622	$ 1.311	14,492	11,890

GSP is productivity ($99,379) x Total Employment
Personal Income is 1/2 GSP

In summary, the data indicates that the joint contribution to the state's economy of the Sub Base, Sub School, and the Electric Boat Company is approximately $3.3 billion in GSP and approximately 31,500 direct and indirect jobs.

VIII. BASE REALIGNMENT AND CLOSURE

In November of 2002, Secretary of Defense, Donald Rumsfeld stated, "Congress authorized a base realignment and closure [BRAC] round in 2005. At a minimum, BRAC 2005 must eliminate excess physical capacity; the operation, sustainment, and recapitalization of which diverts scarce resources from defense capability. However, BRAC 2005 can make an even more profound contribution to transforming the Department by rationalizing our infrastructure with defense strategy. BRAC 2005 should be the means by which we reconfigure our current infrastructure into one in which operational capacity maximizes both warfighting capability and efficiency."[50]

The DOD is in the process of selecting military installations within the United States for either closure or realignment. The process begins with the preparation of a list of installations to be closed or realigned by the DOD. The DOD must follow a proscribed set of criteria when deciding what installations to close or realign (see below).

Once the list has been prepared, the Secretary of Defense must submit it to the congressional defense committees and the BRAC Commission. This is scheduled to occur on or about May 13, 2005. The General Accounting Office must then prepare and submit a report to defense committees on its analysis of the DOD BRAC process and recommendations. This is scheduled to occur by July 1, 2005. The BRAC Commission then will prepare and submit its recommendations to the President. This is scheduled to occur by September 8, 2005. The President must either approve or disapprove the Commission's recommendations in their entirety. If approved, the recommendations are sent to Congress, which has 45 days or until the adjournment of Congress to disapprove the recommendations on an all-or-none basis; otherwise, they become binding. The President is scheduled to either approve or disapprove the list by September 23, 2005. If the President disapproves the list, the Commission has until October 20, 2005 to consider the President's objections and to send a revised report back to the President. If the President had rejected original recommendations, he must forward the revised Commission recommendations to the Congress by November 7, 2005.

Closure and Realignment Criteria

In selecting military installations for closure or realignment, the DOD, giving priority consideration to military value (the first four criteria below), will consider: [51]

Military Value

1. The current and future mission capabilities and impact on operations readiness of the total force of the DOD, including the impact on joint warfighting, training and readiness.

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 for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.

3. The ability to accommodate contingency, mobilization, surge and future total force requirements at both existing and potential receiving locations to support operations and training.

4. The cost of operations and the manpower implications.

Other Considerations

5. The extent and timing of potential costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed costs.

6. The economic impact on existing communities in the vicinity of military installations.

7. The ability of the infrastructure of both the existing and potential receiving communities to support forces, missions and personnel.

8. The environmental impact, including the impact of costs related to potential environmental restoration, waste management and environmental compliance activities.

The DOD will use the aforementioned selection criteria along with their force-structure plan and infrastructure inventory to make recommendations for the closure or realignment of military installations inside the United States. The 2005 BRAC Commission will also use these criteria for their review of the DOD's final recommendations.

BRAC and the New London Naval Sub Base

The New London Naval Sub Base is subject to the BRAC process, as are all domestic military installations. Connecticut has cause to be concerned as the New London Sub base was considered for closing in previous BRAC rounds and competition for location or realignment of base operations is likely from a number of sites. In particular, Norfolk, Virginia is the home of the Norfolk Naval Station and other Navy facilities and commands. Together they are, by far, the largest naval presence on the east coast. The Atlantic Fleet is based there, as is the Commander Naval Submarine Forces. Two submarine squadrons, attached to New London base Sub Group 2, are based in Norfolk.

In 1988 a nonpartisan commission proposed to close 86 military installations entirely, partially close five others, and realign 54 more. In 1989, Congress adopted these recommendations. In 1991, to increase public comment on the 1988 round of closings, Congress approved the National Defense Authorization Act of 1991 (P.L. 101-501), creating an independent Commission on Base Realignments and Closures (BRAC) and calling for three more rounds of closures in 1991, 1993, and 1995. As the New London Sub Base was among the bases slated for closure, a Sub Base Realignment Coalition was established to prevent the closure. The then Department of Economic Development (DED), working in partnership with the Coalition, initiated a series of actions in order to assess the potential for economic disruption in the communities of New London County.

The President rejected the proposed base closure in 1993. However, in 1995, the Navy successfully recommended to close the Naval Undersea Warfare Center, New London Laboratory and transfer the Nuclear Training School from Groton to South Carolina.

Contribution Implications in Light of the Current Round of Base Realignments and Closures.

The DOD is currently in the process of preparing its recommendations for the closure and realignment of existing U.S. military installations. These recommendations will be forwarded to the Base Realignment and Closure Commission (Commission) on or about May 16, 2005. Based on the DOD report the Commission will prepare its own recommendations. The

Commission will then forward their recommendations to the President. If approved by the President the recommendations will be forwarded to Congress where a joint resolution would be required to vote down the entire list, otherwise is automatically approved.

The state has reason for concern, as the New London Naval Sub Base appeared on the base closure list in previous BRAC rounds.

In light of the possibility of a closure of the New London Naval Sub Base, it is important to examine the economic consequences associated with a closure of the facility. The close physical proximity of the sub base and the Electric Boat Company provide enormous benefits to both entities in the development, construction and maintenance of submarines.

As such, the closure of the New London Sub Base would have the effect of eliminating from the local and state economies one of the largest employers in the county and the state and reduce the workload of the Electric Boat Company.

The effect of the closure of the New London Naval Sub Base would be an annual loss to the Connecticut and Southeastern Connecticut economies of approximately $1.3 billion in GSP and approximately 14,040 direct and indirect jobs. A loss of this magnitude would be disastrous for Southeastern Connecticut and certainly a heavy blow to Connecticut's overall economy.

IX. STUDY METHODOLOGY

Any economic impact analysis must quantify the overall effects (for example, changes in output, employment, income, tax revenue) resulting from a policy or economic shock.

In this case, the methodology should take into account not only the impact of the personnel at the Navy Sub Base in Groton but also the jobs at the neighboring shipbuilding plant at the Electric Boat Company. If the Navy Base were to close, it would have severe implications for the company. The following scenarios were modeled:

1. The contributions of the New London Naval Sub Base and Naval Sub School.
    - Reduce military employment by 7,800[52]
    - Reduce civilian employment by 1,400[53]
    - Reduce contractors by 1,000[54] (500 at the base[Ψ, 55], 500 in all industries[*, 56])
    - Reduce Reserve Center Employment by 167[Ω, 57]
    - $50.3 million loss of local construction industry sales in 2005[58]

2. The contributions of the New London Naval Sub Base.
    - Reduce military employment by 5,427
    - Reduce civilian employment by 700
    - Reduce contractors by 500 at the base
    - $50.3 million loss of local construction industry sales in 2005

3. The contribution of the Naval Sub School.
    - Reduce military employment by 2,373
    - Reduce civilian employment 700
    - Reduce contractors by 500 in all industries

4. The contribution of the New London Naval Sub Base, Naval Sub School, and the Electric Boat Company.
    - Reduce military employment by 7,800
    - Reduce civilian employment by 1,400
    - Reduce contractors by 1,000 (500 at the base[Ψ], 500 in all industries*)
    - Reduce Reserve Center military employment by 167 [Ω]
    - $50.3 million loss of local construction industry sales in 2005
    - Reduce firm employment in Rest of Transportation Equipment by 8,250[59]

5. The contribution of the New London Naval Sub Base, Naval Sub School, and the Electric Boat Company (with reduced activity).
    - Reduce military employment by 7800
    - Reduce civilian employment by 1,400
    - Reduce contractors by 1,000 (500 at the base[Ψ], 500 in all industries*)
    - Reduce Reserve Center military employment by 167[Ω]
    - $50.3 million loss of local construction industry sales in 2005
    - Reduce firm employment in Rest of Transportation Equipment by 4,125

6. The contribution of the Electric Boat Company.
    - Reduce firm employment in Rest of Transportation Equipment by 8,250

7. The contribution of the Electric Boat Company (with reduced activity).
    - Reduce firm employment in Rest of Transportation Equipment by [1/2] 4,125

**Allocated according to the each industry's share of input required to produce $1 of federal military purchases.*

[Ψ] Modeled as "rest of transportation equipment" employment (includes submarines).

[Ω]650 drilling reservists were converted to 167 full time equivalents for modeling purposes.

For each of these scenarios, two different economic models are employed for this methodology. The two models are described next to show their different approaches to the measurement of economic impacts. Each has its strengths and weaknesses. Both methods will be employed for the purposes of comparing the size and direction of the expected change in direct and ripple effects on jobs, gross regional product, and income.

Regional Economic Models, Inc.'s (REMI's) Policy Insight ™ model is a widely known and internationally applied econometric model. REMI has an underlying baseline or control forecast against which a simulation forecast is run and the differences show the magnitude of the resulting impact. In the model businesses produce goods and services to sell to other firms, consumers, investors, and government using such intermediate goods as labor, capital, and fuel. Population determines the labor supply. Together the demand and supply of labor determine wages. People will move into an area in part if wages go up. Businesses will also substitute capital for labor if wages are higher. Changes in wages in turn impact incomes and that influences consumer spending. The model takes into account these kinds of interactions in the behavior of households and firms. REMI is a dynamic model allowing inputs over a single year or multiple year periods and forecasting results for each year up until 2035 if desired.

Certain key results of the model allow the user to quantify the impact of many differing economic changes that the user may want to introduce, such as the entry or departure of a firm, or in this particular case, the loss of a sub base and accompanying major sub-supplier/employer. The methodology simulates the interaction of many variables simultaneously.

An alternative methodology is the U.S. Bureau of Economic Analysis (BEA) RIMS II model that relies on published "multipliers" (for employment, output, and earnings). BEA's methodology can be used to verify the validity of other methodological approaches, but it is much less sophisticated in that it simply considers the *direct* effect to be the initial injection (or shock to the economy), and the combined *indirect* and *induced* effects to be this value times the multiplier minus one.

Direct impacts are defined as anything that is an immediate consequence of sub-base economic activity. This may include the activities of the Navy, federal civilian employees, payroll to Navy officers and others with a direct involvement in sub base operations. These entities may be located either on- or off-site. Employing labor in daily base operations and federal government capital investments in sub base construction are examples of sub base activities that generate direct impacts.

Indirect impacts are derived from economic activities of primarily off-site enterprises that serve the sub base, e.g. non-defense service providers such as fuel, fabricated metal, food and beverages, other raw materials that support sub base activity. Indirect effects result from

sub base operations and otherwise might not occur at the location under analysis, but are auxiliary to the main operations.

Induced impacts measure the effects of successive rounds of spending from the direct and indirect impacts. An example of an induced impact is a local merchant going out to the movies or to dinner because of income earned from Navy personnel spending in his or her business. Dependents of military personnel can be an important determinant of this impact as their expenditures can be significant to the local economy. These rounds of expenditures induce more local jobs and income in the general economy of the surrounding local area to the extent that such goods and services are locally produced. Only the purchases of locally produced goods and services are relevant to this analysis. For example, a household hiring a local carpenter to construct a garage is local spending. The purchase of a bicycle made in another state or foreign country is not local but rather an import from outside the region.

Finally, DECD was not concerned with separating the induced from the indirect impacts in this study. All of the effect above the multiplier minus one represents the *combined* indirect and *induced* effects.

Consistent with past studies, this study estimates four measures of economic impact:

- **Value added**: new output created within the region resulting when input supplies and materials are processed by labor to produce a product or service. The model result's "gross regional product" represents this concept.
- **Payroll**: a component of value added, representing the payment for the labor involved in creating new output.
- **Employment**: the number of jobs required to create new output.
- **Net New State and Local Tax Revenue**: New revenues minus new expenditures.

Measurement Tools Used in This Study

As indicated earlier, to generate the aforementioned measurements DECD employed two different types of models, REMI's Policy Insight and BEA's RIMS II. By using two different approaches DECD can pool the collective strengths of both while compensating for their individual weaknesses. Briefly, REMI provides a more robust and comprehensive picture of the New London Naval Sub Base and the Electric Boat Company's relationship to the economy, while RIMS II is a more common approach that may allow for comparison to similar studies done for military bases that used RIMS II multipliers and inter-industry relationships.

RIMS II

The U.S. Bureau of Economic Analysis (BEA) Regional Input-Output Modeling System (RIMS) is a frequently used method of estimating economic impacts. The system was developed in the 1970's to answer the call for greater quantification of social benefits in economic terms. For example, the precise dollar value of clean air, good health, highway safety, and recreation associated with reservoir construction, etc. was rarely quantified. Benefit/cost analysis was developed in part to answer that need. RIMS II is the updated version of this kind of quantification but of direct and indirect economic effects. The approach focuses on inter-industry relationships and regional multipliers using data specific to Connecticut's economy.

Application of RIMS II – The Multiplier Approach

The RIMS II multiplier approach to economic impact analysis is fairly straightforward. Depending on the nature of the primary input data available, one can use multipliers in any one of three categories: earnings, output, or employment. Therefore, if the user knows what the payroll for a given project will be, but not the related investment, the earnings multiplier can be used to measure total economic impact. Alternatively, if only the sales are known, an output multiplier can be used to estimate total impact. Finally, if only employment is known, total employment impact can be measured using the employment multiplier. The user should be cautioned however, that total economic impact *is not* the sum of all three. Each is a different and alternative concept of impact and stands on its own. The availability of three multipliers allows the project impact to be viewed from three different perspectives.

Thus we have the following possible relationships:

(Direct Change in Employment) x Employment Multiplier = Total Employment Impact

OR

(Direct Change in Earnings) x Earnings Multiplier = Total Earnings Impact

OR

(Direct Change in Output) x Output Multiplier = Total Output Impact

The BEA's multipliers are based on the principle that every industry sector of the economy uses inputs from and sells output to all other industry sectors to varying degrees. Thus the input-output relationship (a national table) plays a key role in the value of the individual industry multipliers, and it can be important to know exactly what industries are involved in any given project.

Likewise, the combined indirect and induced effects are the product of the direct change times the fraction that the multiplier is above (or below) 1.00. For example, an output multiplier of 1.7 means that the indirect effects are:

(Direct Change in Output) x (.7) = (Combined Indirect and Induced Effect)

In this example, a direct change in output (say from a $1.0 million injection of federal defense dollars) has a total output effect on the economy of $1.7 million, or $1.0 million directly and $0.7 as a result of indirect and induced spending.

One limitation of the RIMS II multiplier approach is that the result is for a single point in time (i.e. a snapshot), not over a period of time. The issue for the analysis of the Sub Base and Electric Boat is that policy decisions made today have future consequences. It is often preferred to look at the effects of an economic change over a ten or twenty year horizon as some variables are affected differently over time.

REMI

A dynamic tool for assessing economic impacts is Regional Economic Models, Inc. (REMI) Policy Insight™ model. REMI has provided modeling tools to government organizations (of all

levels) and private consultants for over 20 years. Its economic model, Policy Insight, has at its core an input-output component in order to capture the supply relationships between firms. Built onto this are simultaneously estimated systems of econometric equations for five major inter-linked "blocks," namely Demographic, Labor and Capital Demand, Market Shares, Wages-Prices-Production Costs, and Output. Incorporating the latest in economic theory, allowing the user to enter data in multiple years, and forecasting for multiple years the future value of dozens of economic and demographic variables, the REMI model provides a rich array of results. A forecast horizon that may reach from the present to 2035 can be selected depending on the user's preference.

In sum, there are many other reasons why the REMI model is a suitable and preferred tool of analysis, such as the users ability to use multiple inputs, multiple forecast variables as well as the models sophisticated variable interactions, its dynamic (rather than static or "snapshot") feature, its basis in economic theory, and the model's incorporation of a sufficient number of the variables that are likely to change in a counter factual simulation used to estimate the contribution of a sub base to its host community and state economy. The REMI Policy Insight™ model has been tested and proven successful in a numerous range of applications.

Application of REMI to Military Base Installations

The REMI model is highly sophisticated and extremely adaptable, yet its complexity may pose some initial user questions because of the thousands of policy variables from which the user is able choose. The user must make some key decisions even before running any simulations. Among these would be: What are the most important input variables, and why? Is such data available? What are the likely sources? How will the input data enter the model (e.g. as changes in employment or as changes in investment) and for what period of time?

A strong precedent established by other studies and all previous studies of the New London Naval Sub Base without exception is the choice of employment as the "key driver variable." Based on findings in other military studies that employment makes the largest contribution to changes in the economy as well as frequent REMI recommendations, this application will use Navy and civilian employment as key inputs. Military employees also have dependents that may be part of the labor force by holding jobs in the local goods producing or services producing sectors. Their presence in the labor market and their local purchases are potentially significant contributors to the regional economic impact. This makes a strong case for the use of two primary driver input variables here: federal civilian government employment and federal military government employment.

Another user might have reasoned that "investment" (federal capital spending) at the sub base is an appropriate input variable and let employment adjust itself endogenously in the model since the REMI model "automatically" accounts for changes in employment associated with changes in investment. The REMI model has the powerful capability of forecasting both the interaction and the long-term consequences of major employment changes as a result of other industries' capital spending. The model does not automatically estimate employment associated with government spending, however, because government spending is instead a function of population. However, government spending can still be taken into account in the model as "sales" in the industries in which the spending occurs, provided expenditures by major industry category can be made available for this study.

Composition and Availability of Data

All scenarios:

Federal Civilian Government Employment (number) -- Federal government employment in a local area is a fixed proportion of government employment in the nation. The Civilian Employment (number) policy variable changes the level of local employment in the federal civilian sector by the amount entered. Civilian and Military employment are distinct variables and so must be entered separately. Data on each is required separately. This policy variable is located under Labor and Capital Demand Block, Employment in the policy variable hierarchy.

Federal Military Government Employment (number) – Federal government employment in a local area is a fixed proportion of government employment in the nation. The Military Employment (number) policy variable changes the level of local employment in the federal military sector by the amount entered. Civilian and Military employment are distinct variables and so must be entered separately. This policy variable is located under Labor and Capital Demand Block, Employment in the policy variable hierarchy.

Government Spending (amount) – This captures state and local expenditures that result in direct payments for goods and services. In the absence of any better data it may be possible to use Navy defense expenditures in Connecticut as a proxy for private investment spending.

Industry Sales (amount) – Subcategories of total federal outlays related to the New London Naval Sub Base operations spending and capital spending by major industry (e.g. utilities, construction, food, fuel, machinery, transportation services, maintenance and repair, capital projects, etc.) for a typical year. [In the RIMS II modeling, this will be the basis of the Total Output Impact. If individual industry data are unavailable, U.S. spending for the Navy from the DOD Directorate for Information on contract awards will be used as a proxy.]

Electric Boat Company scenarios:

Transportation Industry (SIC 37) Employment (number) – This input variable will be used in the scenario with the loss of Electric Boat in addition to the closing of the New London Naval Sub Base (i.e. a "worst case" scenario) It will be a count of the job loss at EB. [In the RIMS II modeling, this will be the basis of the Total Employment Impact.]

Data Sources

Quantification of economic impacts requires input data from a number of sources:

- *U.S. Department of Defense (DOD)*

  Federal civilian and federal military government spending by major industry category are needed. Operational spending and capital spending data for a typical year will be requested and allocated to the model's Government Spending and Industry Sales policy variables by category as available.

- *New England Economic Partnership (NEEP)*

  NEEP is a consortium of academic, private sector, government, and banking institutions in the six New England states that for the last 30 years has produced (with the assistance of a national forecasting consultant) six proprietary semi annual state and a regional New England-wide forecasts. NEEP confirms the following: 8,200 Navy personnel, 1,400 civilian workers and 1,000 contractors employed by the Groton facility.

- *Bureau of Economic Analysis (BEA)*

  BEA provides the RIMS II multipliers being used for estimating economic impacts as an alternative check on the REMI forecast.

- *Bureau of Labor Statistics (BLS)*

  The BLS is the source of many of the REMI model's control forecast variables.

- *Census*

  Census is the primary demographic data source in the REMI model's control forecast.

- *The Electric Boat Company*

  The company's Connecticut employment is 8,750, 500 of witch are located on-site at the New London Naval Sub Base.

- *Sub Base Realignment Coalition*

  A regional group of political, economic, development, state and local officials whose mission is to build the best possible case for retention of the Sub Base as an integral and significant contributor to the economy. They provided preliminary and supplemental data as it became available to them.

Interpreting Results

Using the REMI model produces results data about the effect of the Sub Base and the Electric Boat Company on the Connecticut and southeastern Connecticut economies. The economic concepts below are among the major results presented in this study and represent the major variables used to assess the overall economic contribution made by the Sub Base and the Electric Boat Company.

Employment – Employment represents one of the most tangible aspects of the military installation to the area, namely full-time jobs for a given year. Employment is one measure of the benefit of the base and can be used to compare this facility to other military base facilities.

Aggregate Personal Income – The total of all income to labor, owners of capital (proprietors' income), and entrepreneurs for their contribution to the production of output. It is a typical

measure of the standard of living to the region's population. Higher aggregate personal income indicates a better standard of living. Higher income also has implications for future demand for goods and services in the rest of the economy.

Gross Regional Product (GRP) – Also called Gross State Product (GSP) when the "region" is the entire state, this is the total dollar value of all final goods and services produced in the region in a given year. It conveys output in dollar terms similar to the way Gross Domestic Product (GDP) does for the nation as a whole.

State and Local Tax Revenues – In-state facilities typically generate both local taxes and local expenditures. This is less true of a military installation because of exemptions of federal property, but state income and sales taxes are impacted and the facility does have implications for local expenditures such as police, fire, schooling, etc. The net of revenues minus expenditures is net new state and local revenues.

In addition to these formally presented results from the model, REMI allows users to see other statistics related to changes in productivity (due to labor and capital access), wage increases because of industry pressures, commodity prices because of excess demand, and numerous others.

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6-A7

Why Groton Is Wrong Base To Close

By Daniel Goure
Published on 7/3/2005 in the New London Day

Over the past 12 years there have been five Base Closure and Realignment (BRAC) commissions leading to the elimination of some bases and other military facilities. The process for determining which facilities to close or realign is relatively straightforward. The Department of Defense proposes a list of bases that is reviewed by an independent commission that passes the final set of names to Congress, which must vote to accept or reject the list as a whole. In general, if a facility is on the Pentagon's initial list, its fate is sealed; but not always. Historically, about 15 percent of the initial recommendations are changed or rejected by the commissioners.

The decision to close the submarine base at New London is an example of the one-in-seven cases in the BRAC process where the Pentagon gets it wrong. DOD wants to save money by consolidating all East Coast submarines at two facilities, Norfolk and Kings Bay. But just moving the 16 boats at New London would not save much money. The "answer" was to close the entire facility.

The recommendation is wrong on two counts.

First, it is inconsistent with the 2005 BRAC criteria. In particular, closing New London will negatively impact the operational readiness of the submarine force. New London is home to more than just its three submarine squadrons. It also houses the Submarine School and the Naval Submarine Support Facility. The Naval Undersea Warfare Center, which develops new operational concepts for submarine operations, is close by at Newport, R.I. Next door is General Dynamic's Electric Boat Division that both builds nuclear submarines and designs future boats. The value for readiness of co-locating submarine training, concept development and design work with a nuclear submarine shipyard cannot be overestimated.

Second, it incorrectly assesses the savings from New London's closure. A synergy exists between the base and the shipyard. Skilled personnel from EB provide maintenance support for New London. This maintenance work is critical to keeping a large and capable work force at EB. Advanced submarine design work at EB, such as the Tango Bravo program, benefits from the close proximity of the Submarine School and Undersea Warfare Center.

Submarine crews, who go on board their boat a year or more before it is launched, make use of the facilities at the naval base. Without the base, the cost of servicing their needs will inevitably rise. New London is one half of a sophisticated, complex and world-class submarine design/build/repair capability. One will not do well without the other. It is not simply a matter of dollars saved but of capabilities potentially lost.

The BRAC Commission should easily recognize that closing New London is a bad idea. Any savings gained are likely to be offset by such tangible losses due to increased maintenance costs and the intangible costs associated with destroying a unique network of capabilities. Weakening the U.S. strategic advantage in undersea warfare is not worth a few hundred million dollars of savings.

Dr. Goure is a vice president with the Lexington Institute, a nonprofit, public-policy research organization headquartered in Arlington, VA. He has worked at the senior levels of the Department of Defense, and as a senior analyst on defense issues with the Center for Strategic and International Studies, the Center for Naval Analyses, Science Applications International Corporation, SRS Technologies, R&D Associates and System Planning Corp

TESTIMONY - OPENING REMARKS
JAMES ABROMAITIS, COMMISSIONER,
\CONNECTICUT DEPARTMENT OF ECONOMIC & COMMUNITY DEVELOPMENT

BASE REALIGNMENT AND CLOSURE COMMITTEE HEARING JULY 6, 2005

My name is Jim Abromaitis, Commissioner of Connecticut Department of Economic and Community Development.

Before we get into Criteria 6-7-8, let me just remind the Commission that the State of Connecticut has only 1.2% of the U.S. population while having the 23rd ranked economy in the nation.

Our State is rich in tradition, quality of life and most important, in economic terms, second to none in the productivity of its workforce.

With these facts in mind, the DoD recommendation to the BRAC Commission to close the Submarine Base New London in Groton as well as their other recommendations related to Connecticut, hit Connecticut harder than any other state.

The net effect of job loss is 8,568 out of the national net number of 12,684. That is 68%. Largest single closure before the BRAC in terms of jobs lost. (See 6-A1)

The overall impact of the SUBASE New London closing over the course of the phasing proposed could, based on our own analysis, affect 31,500 jobs and has a negative economic impact of $3.3 billion dollars. (See 6-A5 and 6-A6)

Our economy is still recovering from the last recession and this base closure would take Connecticut a **GENERATION** to recover.

Based on these facts, Governor Rell assembled a "Strike Force" of nine state agencies to analyze criteria 6-7-8.

I believe our analysis will demonstrate that there were substantial deviations which penalized New London and do not fulfill the requirements outlined under each Criterion nor did the DoD adequately or fairly consider the unique characteristics of the New London SUBASE, its host communities, the national security implications and the synergistic relationship between an active SUBASE, sub school and Electric Boat: a relationship that produces both tangible and intangible efficiencies that provide numerous benefits to the Navy and towards U.S. national defense.

I have the pleasure of introducing Jeff Blodgett, Vice President of Research at Connecticut Economic Resource Center who along with the Strikeforce analyzed

Criterion 6 & 7. The Connecticut Department of Environmental Protection looked at Criterion 8. Commissioner Gina McCarthy will go into greater detail regarding the issues surrounding Criterion 8 and the environmental costs touched on earlier by Mr. Stern.

6-A10

TESTIMONY - CRITERION #6 AND #7 REMARKS
JEFFERY BLODGETT, VICE PRESIDENT,
CONNECTICUT ECONOMIC RESOURCE CENTER

BASE REALIGNMENT AND CLOSURE COMMITTEE HEARING JULY 6, 2005

Good morning. My name is Jeff Blodgett and my task this morning is to provide a critical review of issues pertaining to the economic impact of the proposed closure of SUBASE New London.

In addition, I will also discuss issues pertaining to the capacity of the New London region as it compares to Norfolk and Kings Bay under criterion 7.

In regards to the BRAC economic impact analysis I would like to detail several key weaknesses and data omissions.

First). There was a significant omission of thousands of jobs:

- SUBASE contractors – approximately 1,000
- Spousal jobs – 2,950

Second). The economic region was defined differently in New London **(next slide)** as you can see, the other two regions are about 4 times the size of New London. This results is an under statement of economic impacts.

Third). Because the BRAC model is static it cannot capture the long-term impacts of this multi-year shutdown. No data on the migration of population and capital are available.

(Next Slide)

Fourth). The model provides no estimate of fiscal impacts on state and local government. From work that we have done we know the lose of the base could cost the state more than $45 million annually. Fiscal impacts on local communities would be especially devastating as well.

Fifth). Regional competitiveness will be adversely impacted increased unemployment claims will necessitate raising the rates paid by business and estimated 2.5%. This increases business costs in an already pricey state, resulting in the loss of an additional 3,000 jobs.

(Next Slide)

In summary, there are several key deficiencies in the BRAC economic impact analysis.

- The static economic model used in the BRAC analysis does not capture the impacts over a period of several years, particularly the out migration of labor and capital.

- The economic region is defined inconsistently with Norfolk and Kings Bay, resulting in an underestimate of job loss!

- Not all job losses were reflected in the BRAC analysis. The omission of thousands of jobs meant that the BRAC analysis is grossly incomplete.

Sixth). And finally, the fiscal impact on state and local government has not been considered.

In light of these findings, and considering the problems cited in our written materials, it is readily apparent that the BRAC economic impact analysis significantly understates the devastating impact that this closing would have on the regional economy.

(End #6 --- Next Slide)

Criterion 7 – Capacity

Turning now to Criterion 7 which, as you know, deals with the ability as it currently exists of the infrastructure of both the existing, and potential receiving communities.

We did undertake a detailed and comprehensive analysis based on the several metrics used by BRAC for Criterion 7 and our analyses and comparisons will be submitted as part of our written testimony.

At this point, however, I would like to draw your attention to a study conducted by the Department of the Navy **(refer to slide)**

This study dealt with the capacity of three east coast bases, New London, Norfolk and Kings Bay, to handle the new SEAWOLF attack submarine. The consultant hired by the navy undertook, in a thoughtful and deliberative process, a comprehensive capacity analysis based on 14 criteria identified by the Navy, in ten of the 14 criteria.

(Next Slide)

Subase New London was ranked first among these bases. As you can see by reading this list, these criteria from 1995 are similar in most respects to those being used in the current BRAC round.

(Next Slide)

As a result of this analysis, Subase New London received the highest overall ranking and was the final homeport recommendation of the consultant. **(Read quote)**

Therefore, I submit to the BRAC Commissioners, that if this comprehensive, well-documented analysis resulted in Subase New London being selected as the best overall choice for homeporting attack submarines, in 1995 and, given that the only change in any of the 3 bases since has been a $100 million infrastructure expansion and upgrade at Subase New London, then what was true in 1995 still remains true in 2005 --- Subase New London remains the base of choice in regards to homeporting attack submarines. In face of the objective, rigorous navy-sponsored analysis, it is clear that reason and logic dictate that Subase New London be stricken from the list of bases slated for closure.

Thank you for your attention and consideration of these comments.

CRITERION #7

Substantial Deviation from Selection Criterion 7:

- **Navy Study re: Homeporting of SEAWOLF class submarines**
  - **In 10 of the 14 criteria New London was 1st**
    - **Strategic Value**
    - **Operational Suitability**
    - **Quality of life**
    - **Maintenance Capability**
    - **Training Capability**
    - **Integrated Logistics Support**
    - **Ordinance Capability**
    - **Maintenance Dredging**
    - **Built Environmental Impacts**
    - **Community Support**

NOTES

Navy Final Environmental Impact Statement for Homeporting the SEAWOLF Class Submarine on the East Coast (See 7-A1)

The Navy commissioned an EIS in 1995. The EIS address the need, alternatives, and environmental consequences of homeporting 3 SEAWOLF class submarines at an existing port on the east coast. NL, KB and Norfolk were each evaluated as homeports.

By a very wide margin, the preferred alternative was to homeport the SEAWOLFs, in NL. (Lowest score is best)

- NL 20pts
- Norfolk 27 pts
- KB 32 pts

Each potential homeport was analyzed and ranked by 14 evaluation criteria. NL ranked 1st in 10 out of the 14 criteria.

Ranked 1st

- Strategic Value
- Operational Suitability
- Quality of life (Tied with KB)
- Maintenance Capability
- Training Capability
- Integrated Logistics Support

- Ordinance Capability
- Maintenance Dredging
- Built Environmental Impacts
- Community Support (Tied with KB & Norfolk)

Ranked 2nd

- Dredge Sediment Disposal
- Natural Resources Impacts

Ranked 3rd

- Initial Dredging
- Water Quality Impacts

Quality of Life (See 7-A4 and 7-A5)

- New London has a superior quality of life:
  - More child care per capita
  - More educational opportunities (institutions of higher learning per cap)
  - Higher skilled workforce (higher educational attainment)
  - More and higher paying job opportunities for spouses/other household members
  - More cultural/entertainment opportunities (theaters, performing arts, historical sites, casinos)
  - Greater capacity to absorb K-12 population

Substantial Deviation from Selection Criterion 7:

- **Results From Navy SEAWOLF Study**
  - **"The preferred alternative to homeport the SEAWOLF is the SUBASE New London" (over Norfolk and Kings Bay) – Page 2-96**
  - **"The significant added value to Submarine Force operations that accrue with the regional concentrations of submarine command, tactical development, maintenance, training, and medical research assets;..." – Page 2-96**

NOTES

- **Read the slide verbatim**

- This study looked at similar key criteria as the BRAC. Based on the data available we can see no significant changes in the data, which would justify a different outcome – other than the biased weighting assigned by DoD e.g PS-1 where NL received a score of zero, rather than the 1.01 it should have received.

  - Attribute: Personnel Support, Component: Medical - PS-1. Is your activity within the medical catchment area of an in -patient military medical treatment facility? Yes – **Newport, RI** (Source: Supplemental Information To Volume IV Of DoD Base Closure Report).

Substantial Deviation from Selection Criterion 7:

- **Regional significance of New London Re: Homeland Security**
  - **The area is a target-rich region**
  - **Both the Submarine Base and the U.S. Navy have been leaders in regional counter-terrorism efforts**
  - **Northeast Midwest Institute –Unguarded Region – April 2005**

NOTES

Regional Significance of New London Re: Homeland Security (See 7-A6)

The Groton/New London area is a target-rich region. Some of Connecticut's Key Assets include:

- *Pfizer Pharmaceuticals;*
- *Dominion/Millstone Nuclear Power Station;*
- *Plum Island, a federal research facility specializing in animal diseases is located approximately ten miles from the New London coastline*
- *General Dynamics -- Electric Boat Shipyard;*
- *Dow Chemical Company;*
- *Amerada Hess Petroleum Facility;*
- *Mohegan Sun Casino and Foxwoods Casino;*
- *Thames Shipyard and Repair Company;*
- *U.S. Coast Guard Academy;*
- *The Fisher Island and Cross Town Ferries;*
- *Cargo ships and tankers utilizing shipping lanes in Long Island Sound;*
- *The deep water Port of New London, serving as a port of call for cruise ships;*
- *Fisher's Island; and*
- *Block Island*

The U.S. Navy has increased boat patrols in the area in addition to the United States Coast Guard, and their presence is an effective deterrent to anyone contemplating a maritime attack in the area.

The location of the Submarine Base with its own Fire Department and HAZMAT Team is critical in responding to other U.S. ports on the eastern seaboard including Newport, Rhode Island, which hosts the Naval War College and the Underwater Systems Program. Submarines and other naval assets coming from Virginia would not be able to respond as quickly nor have the "omnipresence factor" that exists today because of the location of the base in New London/Groton.

Northeast Midwest Institute - Base Closings and Military Presence in the Northeast-Midwest:
The Nation's Unguarded Region – April 2005

- The Northeast and Midwest stand out as the nation's least guarded regions at a time when military concerns increasingly focus on homeland defense and as the U.S. Defense Department prepares to significantly reduce its installations on home soil.

- The 18 northeastern and midwestern states, which hold about 40 percent of the nation's population, account for only just more than 10 percent of the active duty military personnel located in the country.

Criterion #7 Supporting Attachments

7-A1. Environmental Impact Home Port SEAWOLF 1995

7-A2. Comparative Data Matrix Summary

7-A3. Comparative Geography

7-A4. Connecticut Population Density

7-A5. Comparative Data Matrix Charts & Graphs

7-A6. Homeland Security Issues for BRAC

Criteria #7

The DOD must assess the ability of the infrastructure of both the existing and potential receiving communities to support forces, missions and personnel.

In order to assess a community against Criteria 7 the DOD used the following data categories: Demographics, Child Care, Cost of Living, Education, Employment, Housing, Medical, Safety/Crime, Transportation, Utilities.

Comparative data for the aforementioned categories (and others) has been collected and is currently being analyzed. Preliminary analysis has yielded the following:

DEMOGRAPHICS

- **New London has a greater concentration of its population with bachelor's degrees and above** (26.3%) than Camden County (15.9%) and the Norfolk metro (23.7%).

- In terms of population density, New London is a strategic location within the Boston—New York corridor. Approximately **6% of the U.S. population lives within a 100-mile radius of the Groton submarine base**, compared to about 1% each around the Kings Bay, GA and Norfolk, VA bases.

- Between 2000 and 2004 the **labor force of New London County** and the Norfolk metro **grew faster than their population**. In Camden County, the opposite was true: strong population growth was coupled with slower labor force growth.

- **In New London County there are 7.4-day care providers** (including nursery schools and Head Start programs) **for every 1,000 children under the age of five**. In Camden County, that ratio is 4.2, and in the Norfolk metro, 4.3.

BUSINESS PROFILE

- The industries in Camden County with the largest relative employment concentrations are those that serve the local population. In the Norfolk metro, the economic base industries primarily serve local and tourism demand. As **for New London County, its industries include a mix of serving the local and tourist populations, as well as fueling the technology sector** (amusement industries, museums, chemical manufacturing, other information services, accommodations, utilities, food services, water transportation, and waste management). All areas have employment concentrations in transportation equipment manufacturing; specialized submarine design and construction is a part of New London County's historic and current business profile.

- Similarly, with major employers, those in Camden County primarily serve the local population. In the Norfolk metro, major employers serve the local population, including healthcare and higher education, while the **New London major employers serve the local and visiting populations as well as provide opportunities for employment in the technology and healthcare sectors**.

EDUCATION

- The **high school dropout rate in Camden County, 4.7%, is higher than the New London rate of 2.8%** and Norfolk metro's 1.8%.

- **Sixty-four percent of New London County students who took advanced placement tests scored a three or higher**, versus 55% in Camden County and 63% in the Norfolk metro.

- **Connecticut 4th-grade and 8th-grade students fare quite well across the board on the NAEP tests**, averaging better than their Georgia and Virginia counterparts by 60% and 30% respectively. **New London County's average combined SAT score of 1,024** is 80 points higher than the Camden County average and comparable with the Norfolk metro.

- **The percentage of teachers who are "highly qualified" according to the No Child Left Behind Act in New London County is practically universal at 99%**, versus Camden County at 97% and the Norfolk metro at 95%.

- There is a difference in the student-teacher ratios: **In New London County, there is one teacher for every 13.1 students.** In the Norfolk metro, the ratio is 13.8 to 1, and in Camden County, 18.3 to 1.

- There is one community college located in Camden County, and two institutions have degree programs on the sub base. **In New London County, there are two private colleges, one public university, a community college, and the U.S. Coast Guard Academy.** The Norfolk metro area has approximately 30 private and public institutions of higher education, including community colleges, associate programs, and four-year degree programs.

- **Groton Public Schools and the New London U.S. Naval Submarine Base are recipients of the Military Child Education Coalition 2005 LTG (Ret.) Pete Taylor Partnership of Excellence Award** for "demonstrating (an) ongoing commitment to working together for the future of our children...Strong ties exist between the Groton Public Schools and the military community. Partnerships and bonds have been developed for the benefit of the children and will continue to expand into the future."

- The Camden County school system would expect approximately 1,000 additional students in its school system if the Groton submarine base families relocated. **An increase in school enrollment of almost 10% may affect the capacity and the quality of resources available to the children in the Camden County schools.**

LABOR FORCE

- The **employment participation rate in New London County is 54.5%**, versus 37.9% in Camden County and 49.3% in the Norfolk metro.

- **Only 3% of New London County residents travel out of state to work**, versus more than 13% in Camden County and 2% in the Norfolk metro.

PUBLIC SAFETY

- The **submarine base fire department has 54 FTE with an annual salary and operating budget of $5.6 million**. There are at least 17 firefighters on staff 24 hours a day, 7 days per week. These firefighters are all trained in emergency preparedness to at least the EMT level. Besides the base necessities, this fire department **responds to working fires in the surrounding communities** of Groton, Mystic, Waterford, Ledyard and Gales Ferry. **Two ambulances** provide mutual aid to Groton, Ledyard, Gales Ferry and New London. If the

submarine base resources relocated, these communities would have to absorb these costs for emergency services.

- In addition, **the U.S. Navy has two additional boat patrols in New London** that would have to be replaced by the U.S. Coast Guard, should the U.S. Navy relocate.

HEALTHCARE

- **Overall mortality rates in New London County are lower** (777.7 per 100,000 people) relative to Camden County (870.6) and Norfolk city (1,032.6).

GEOGRAPHY & CLIMATE

- **New London is closer than King's Bay and Norfolk to a number of strategic locations** including Gibraltar, Lisbon, Paris, London and Oslo.

- **Average elevation in New London is 33 feet**, versus 16 feet in Camden and 12 feet in Norfolk.

- **Hurricanes and tropical storms affect Camden County and the Norfolk metro more so than New London County**, which can have an impact on mobilizing resources.

- The **road and bridge conditions are generally comparable** in all three regions; however, Camden County has a high water table and relatively poor soils.

ENVIRONMENT

- Camden County is the home to a number of threatened and endangered species, which make construction and dredging more difficult. There are a few threatened and endangered species in the Norfolk metro, and **no known state or federally listed threatened or endangered species in New London County.**

- **Dredging is an occasional activity in New London County**, an ongoing one in Camden County, and occurs somewhat occasionally in the Norfolk metro.

- **The cost of closure and remediation for the Groton submarine base is estimated to be approximately $175 million.**

HOUSING

- The U.S. Bureau of Labor Statistics does not publish a cost of living index for these areas. As a proxy, median monthly rent is used. New London County's $646 per month is 17% higher than Camden County, and 5% higher than Norfolk MSA. However, **New London County's median household income of $54,586** is higher than the Camden County and Norfolk metro averages by 23% and 18% respectively.

- Annual housing permits in Camden County do not comprise one percent of the new permits in Georgia. **In New London County housing permits were 12% of Connecticut's total in 2004**, and the Norfolk metro registered 16% of Virginia's permits.

- The **homeownership rate in New London County, at 60%, is slightly higher** than that of Camden County (55%) and the Norfolk metro (59%).

VETERANS

- **More than 10,600 DoD retirees live in Connecticut.** Many of these veterans look to the sub base for resources, not to mention their spouses and dependents and those living in western Massachusetts and Rhode Island.

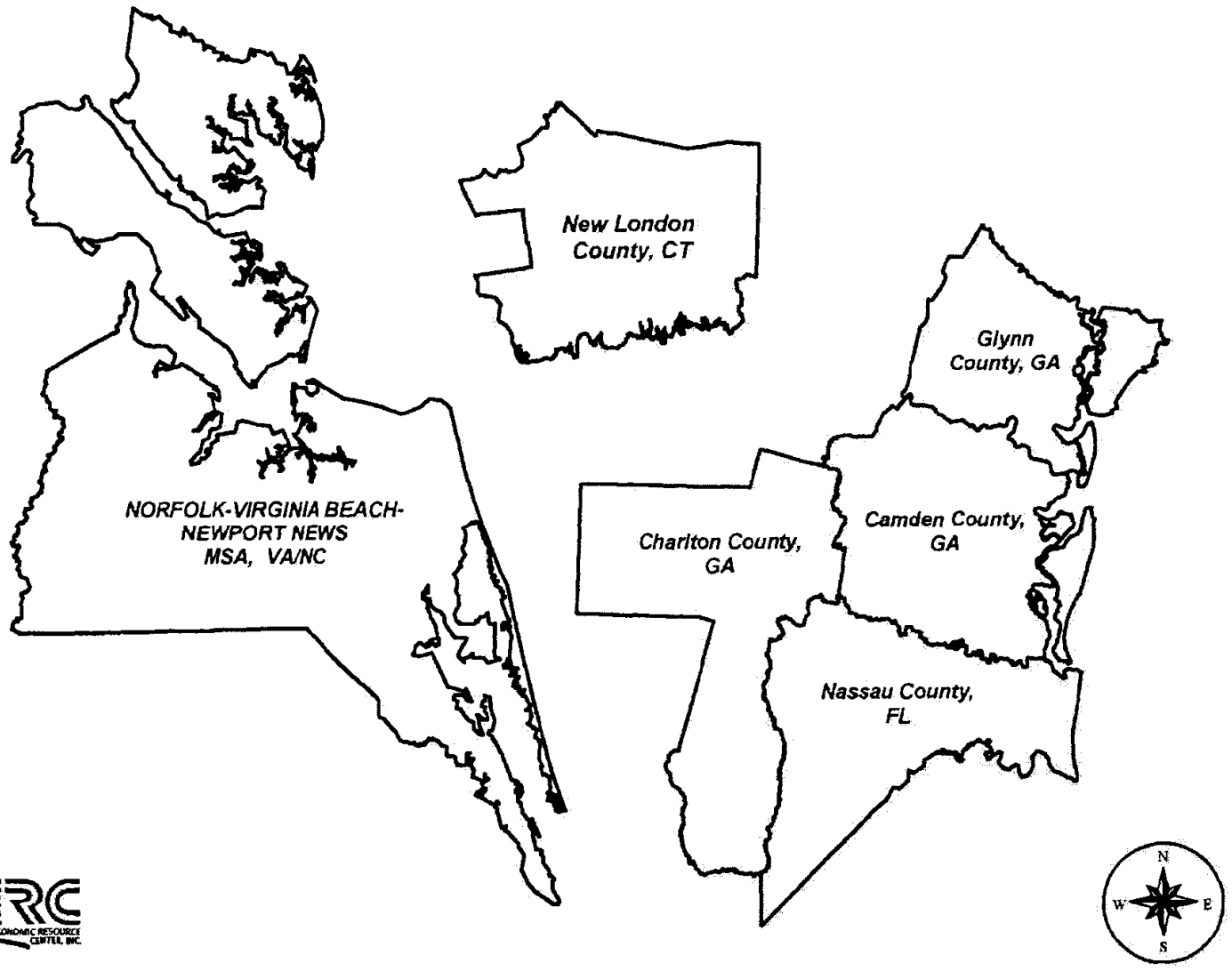
FISCAL

- **Connecticut has a relatively "lean" government staff**—public sector employment is 15% of total employment, compared to 16.4% in Georgia and 18.2% in Virginia.

- **Fair market value per capita** in Georgia is $65,598, vs. $83,142 in Virginia and **$139,751 in Connecticut.**

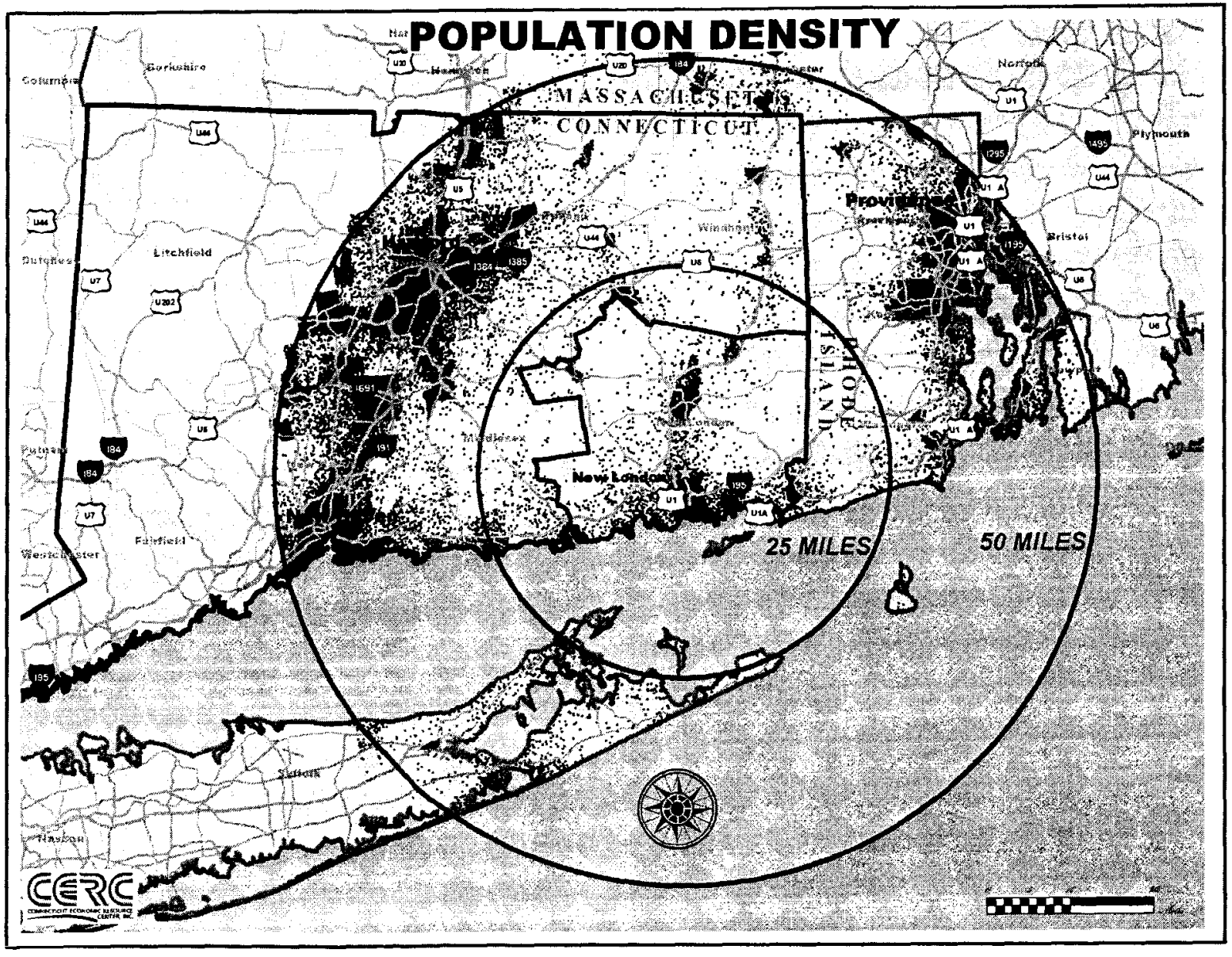
7-A3

Geographic Comparison



CERC
CONNECTICUT ECONOMIC RESOURCE CENTER, INC.

7-A4


POPULATION DENSITY
MASSACHUSETTS
CONNECTICUT
RHODE ISLAND
Litchfield
Fairfield
Middlesex
New London
Norfolk
Plymouth
Bristol
25 MILES
50 MILES
CERC

Connecticut and New London County have had a consistently high level of bachelor's degree recipients.

Geography	Bachelor's Degree or more			
	1990	2000	2004	2009
New London County	21.8%	26.2%	26.2%	26.3%
Camden County	13.4%	16.0%	15.9%	16.0%
Norfolk Metro	19.8%	23.8%	23.7%	23.7%
Jacksonville, FL	18.6%	22.9%	23.0%	23.1%
Connecticut	27.2%	31.4%	31.4%	31.4%
Florida	18.3%	22.3%	22.3%	22.3%
Georgia	19.3%	24.3%	24.3%	24.3%
Virginia	24.5%	29.5%	29.5%	29.5%
U.S.	20.3%	24.4%	24.4%	24.4%

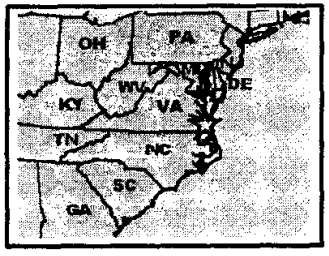
Source: CERC DataFinder

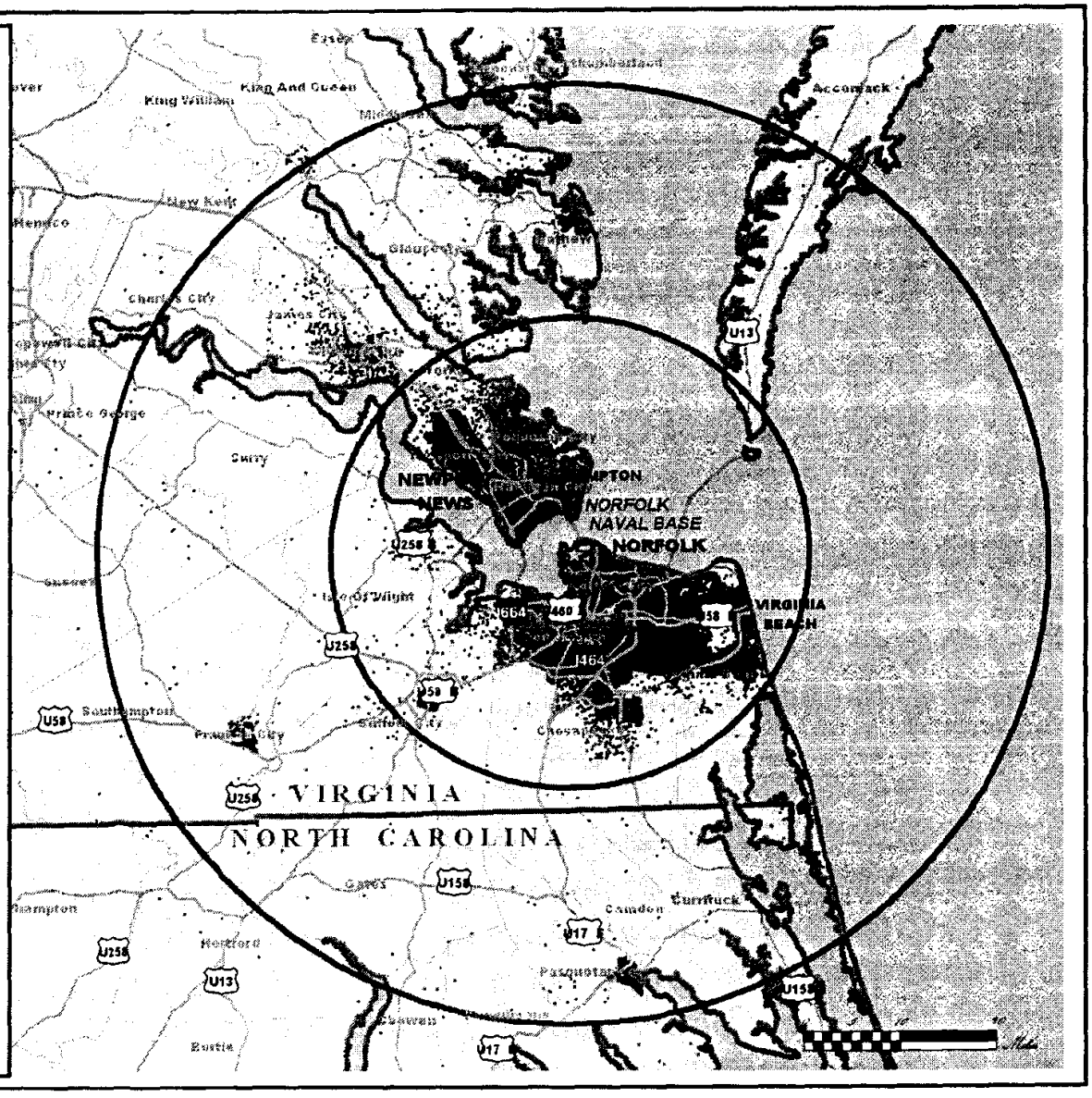
NORFOLK NAVAL BASE

2004 Populuation Dot Density, by Census Tract

Legend

- 1 Dot = 10 Persons
- 25, 50 Mile Radii
- Military Base
- Counties





CERC

GROTON NAVAL SUBMARINE BASE

2004 Populuation Dot Density, by Census Tract

Legend

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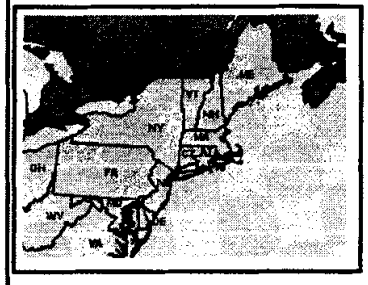
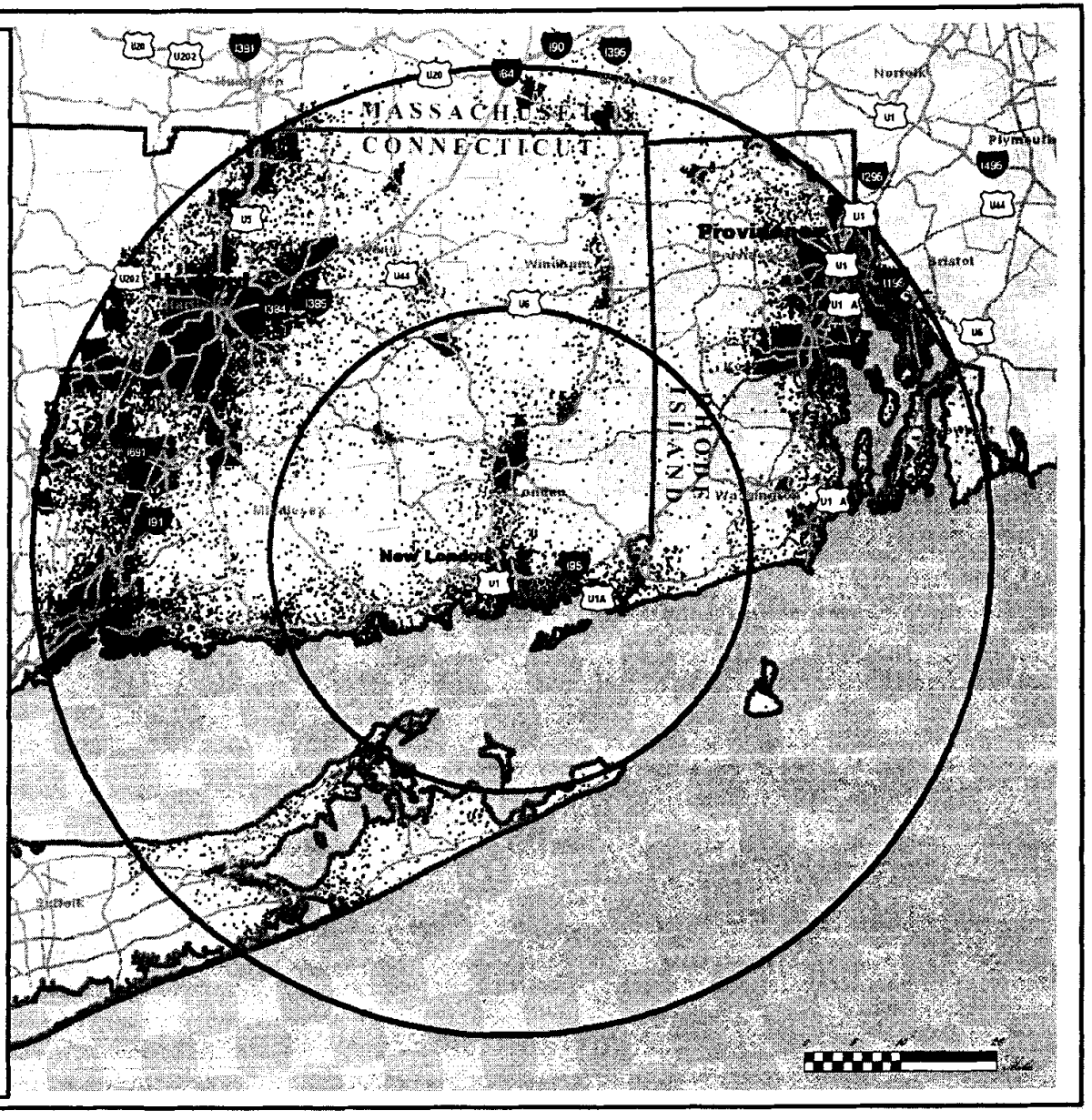
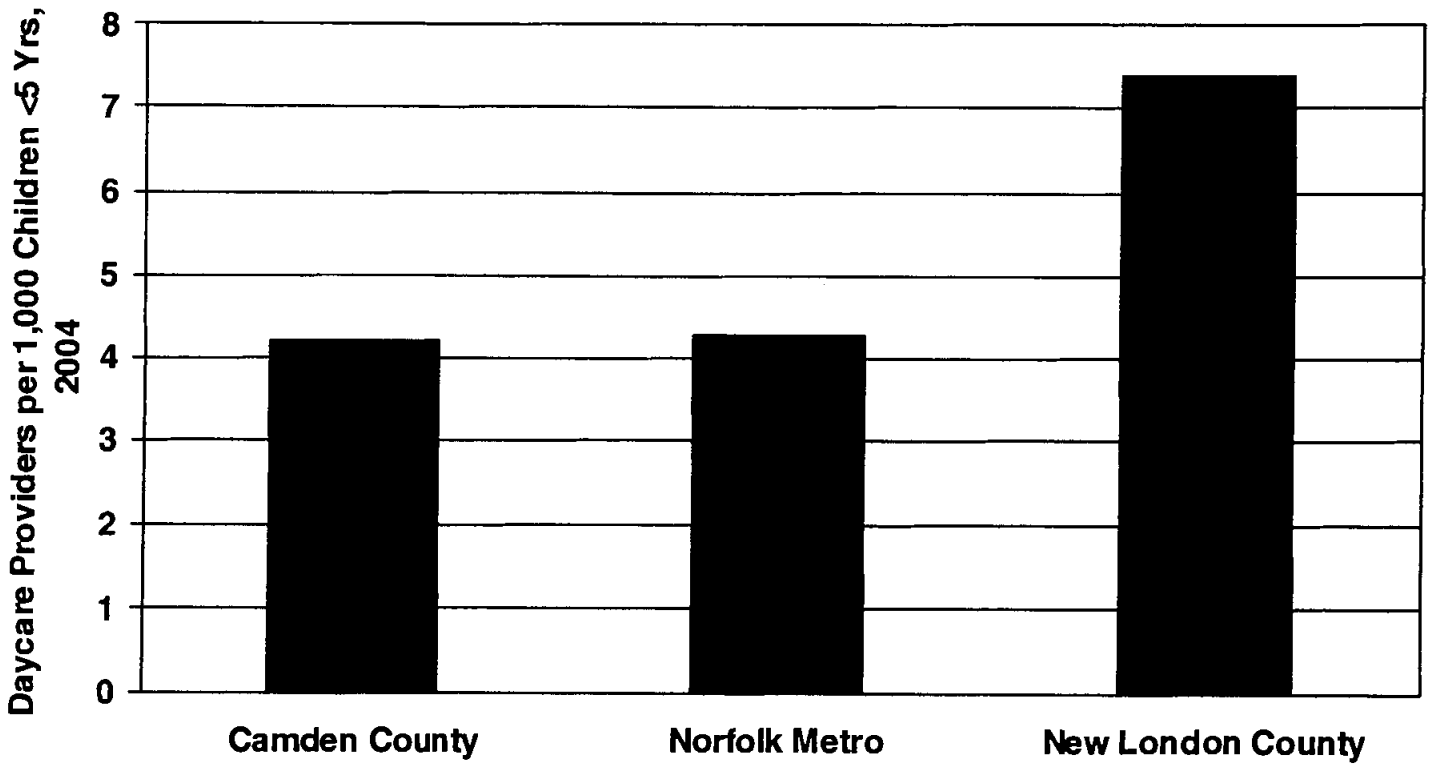
- *25, 50 Mile Radil*
- *Military Base*
- *Counties*





CERC
CONNECTICUT ECONOMIC RESOURCE CENTER, INC.

In New London County there are 7.4 day care providers (including nursery schools and Head Start programs) for every 1,000 children under the age of five. In Camden County, that ratio is 4.2, and in the Norfolk metro, 4.3.



Sources: U.S. Census, D&B Sales & Marketing Solutions

Sources: U.S. Census, U.S. BLS

Economic Base Industries in Norfolk Metro*

NAICS	Industry Description
483	Water Transportation
712	Museums, Historical Sites & Similar Institutions
487	Scenic & Sightseeing Transportation
336	Transportation Equipment Mfg
812	Personal & Laundry Services
488	Support Activities for Transportation
221	Utilities
811	Repair & Maintenance
238	Specialty Trade Contractors
531	Real Estate

Source: Economy.com; Calculations by CERC

* based on relative employment concentrations (location quotients)

Major Employers in Camden County

Employer	Employees
Kings Bay Naval Subase	8,940
Camden County Schools	1,700
VT Griffin Services	700
Express Scripts	650
Lockheed Missiles	430
Wal-Mart	425
Camden County Government	350
Camden Medical Center	260

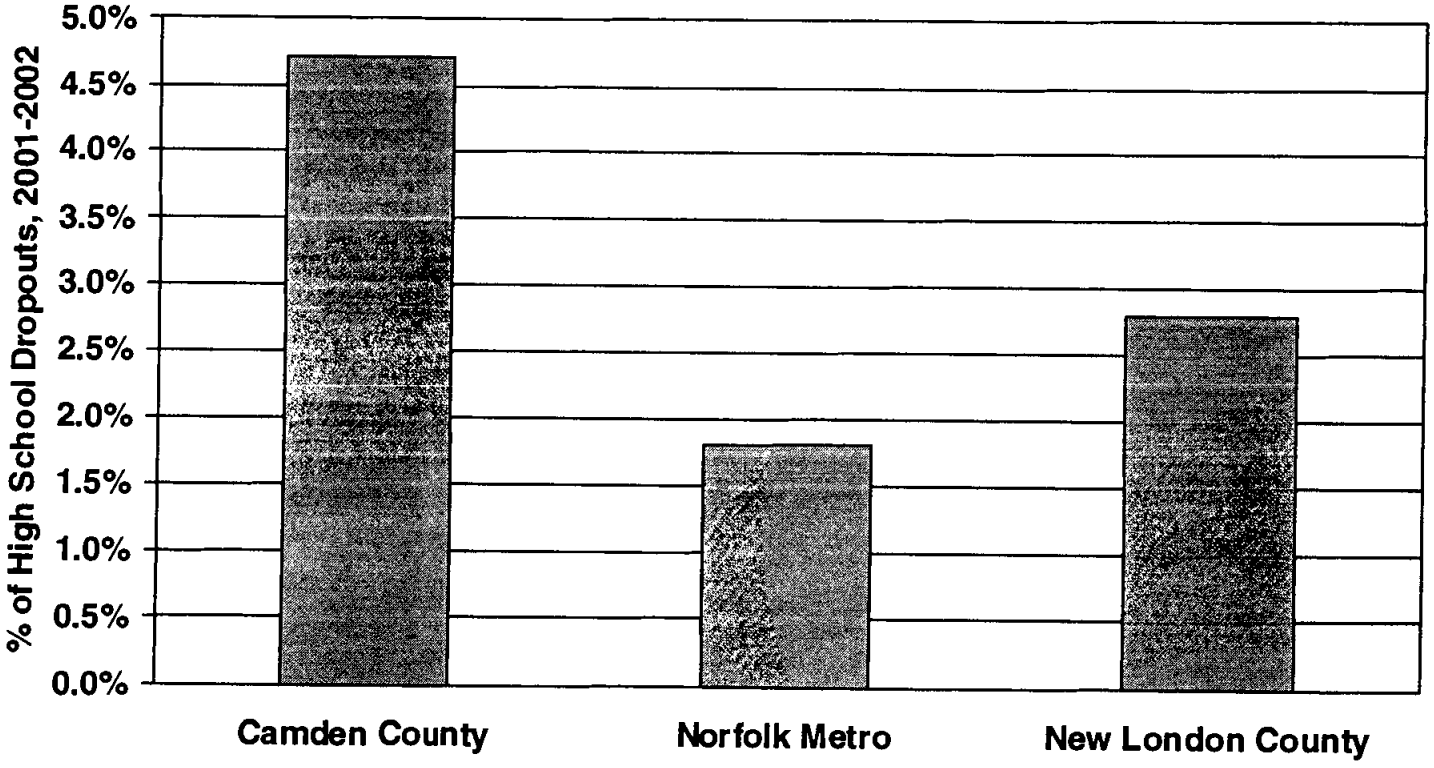
Source: http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership

Major Employers in Norfolk Metro

Employer	Employees
U.S. Federal Government	50,000
Northrop Grumman Newport News	18,000
Sentara Healthcare	14,000
Riverside Health System	6,800
College of William & Mary	4,693
Naval Medical Center Portsmouth	4,028
Colonial Williamsburg	3,500
Smithfield Packing Company, Inc.	3,113
Bank of America	3,000
Old Dominion University	2,956

Source: http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm

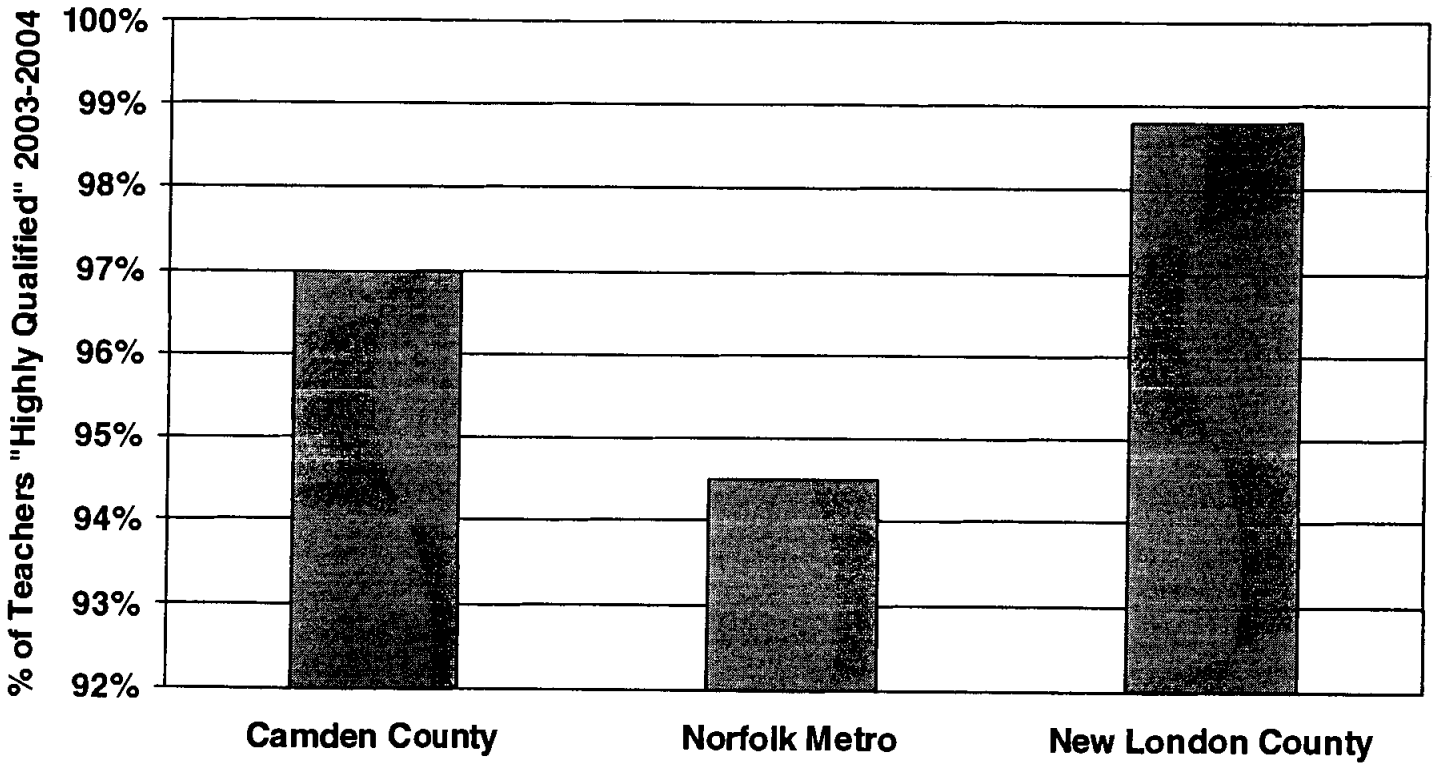
The high school dropout rate in Camden County is higher than the New London and Norfolk metro rates.



Source: National Center for Education Statistics

Source: http://www.secter.org/pdfs/EconomyandLabor Force.pdf

The percentage of teachers who are "highly qualified" according to the No Child Left Behind Act in New London County is practically universal.



Sources: Georgia BOE, Connecticut State Department of Education, Virginia BOE

Higher Education: Number of Institutions

- There is one community college located in Camden County, and two institutions have degree programs on the sub base.
- In New London County, there are two private colleges, one public university, a community college, and the U.S. Coast Guard Academy.
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Sources: Camden County Chamber of Commerce; Virginia BOE; Connecticut State Department of Education

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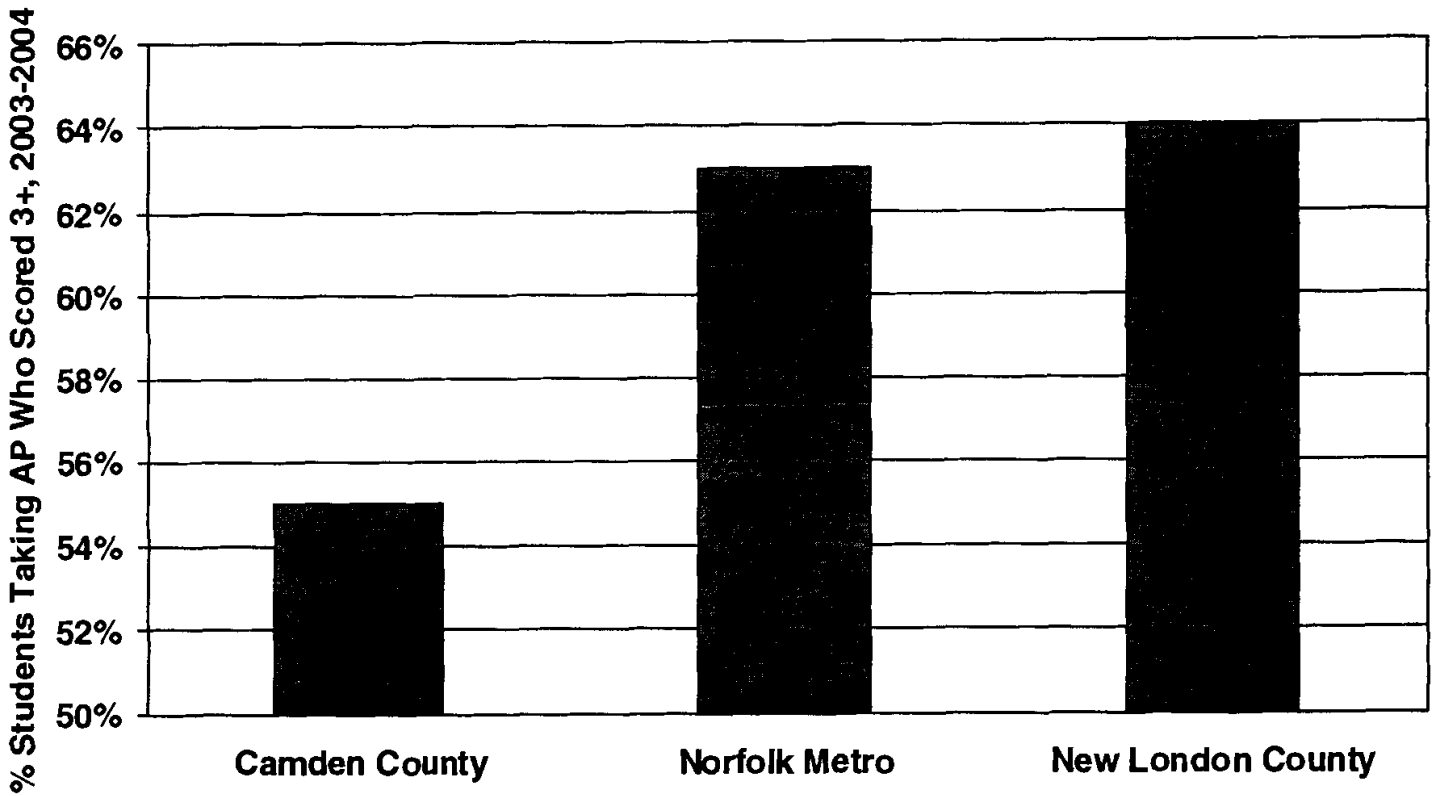
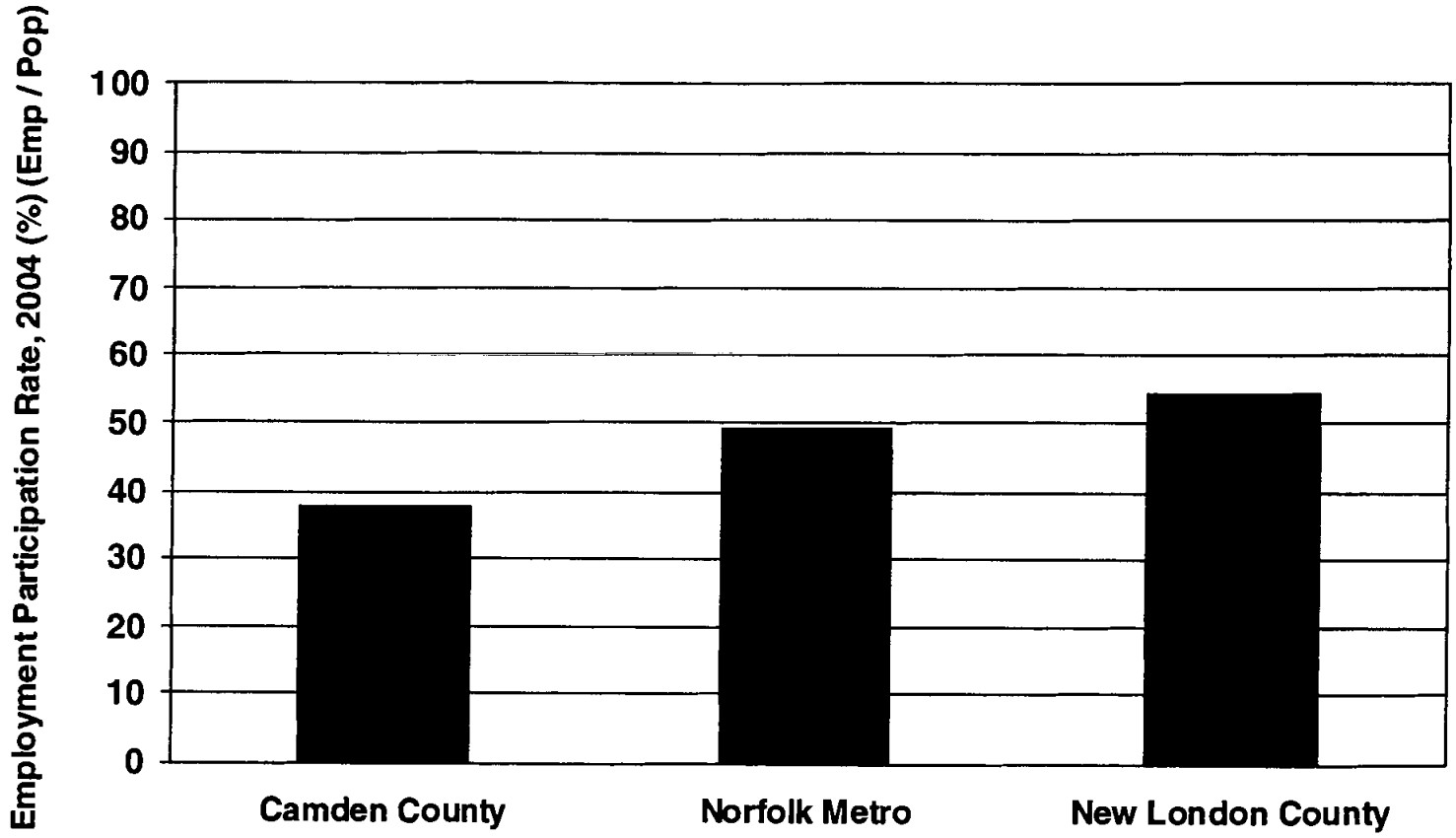


Sources: Georgia BOE, Connecticut State Department of Education, http://apcentral.collegeboard.com/article/0,3045,149-0-0-41919,00.html

New London County has the highest employment participation rate.



Sources: STATS Indiana, U.S. BLS

Public Safety: If the submarine base resources relocated, communities would have to absorb costs for emergency services.

- The submarine base fire department has 54 FTE with an annual salary and operating budget of $5.6 million.
- There are at least 17 firefighters on staff 24 hours a day, 7 days per week. These firefighters are all trained in emergency preparedness to at least the EMT level.
- Besides the base necessities, this fire department responds to working fires in the surrounding communities of Groton, Mystic, Waterford, Ledyard and Gales Ferry.
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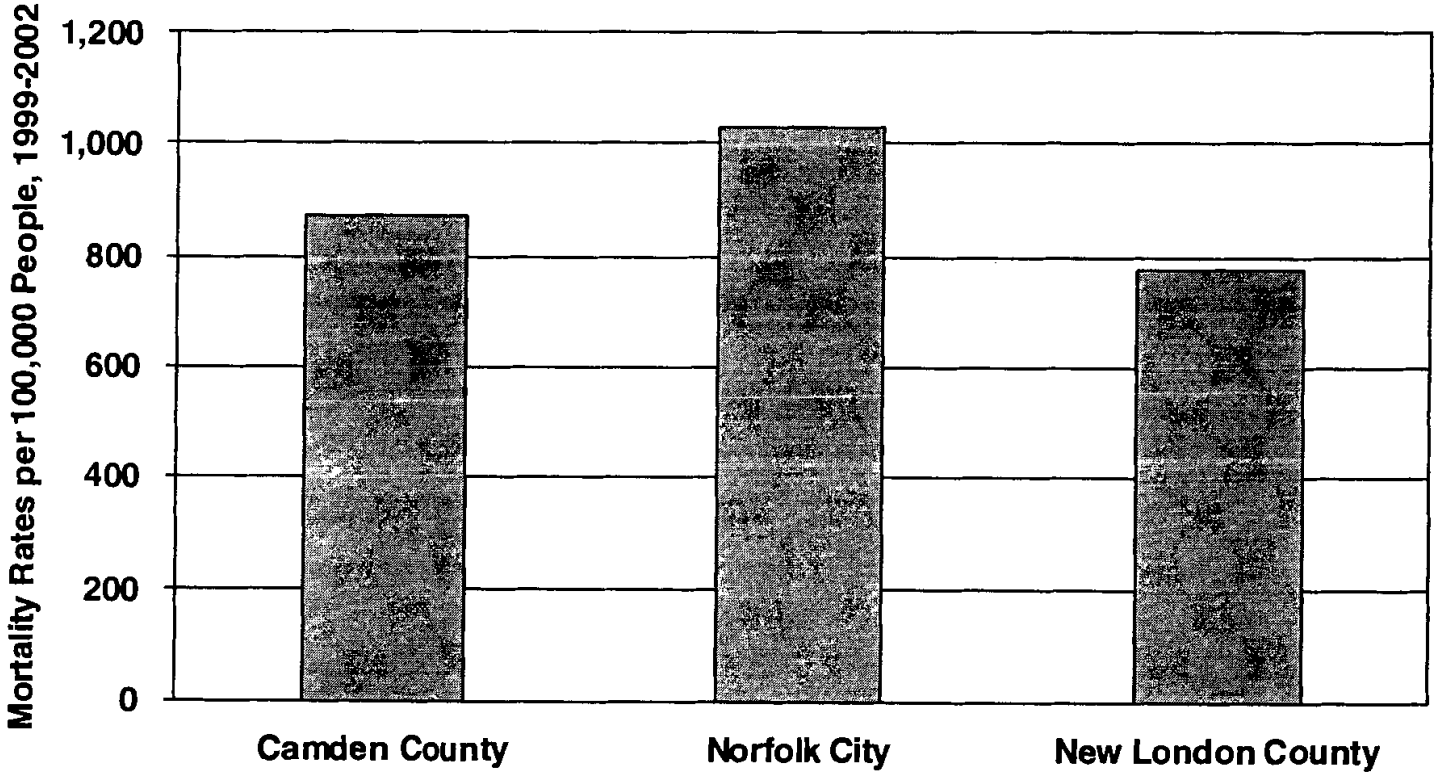
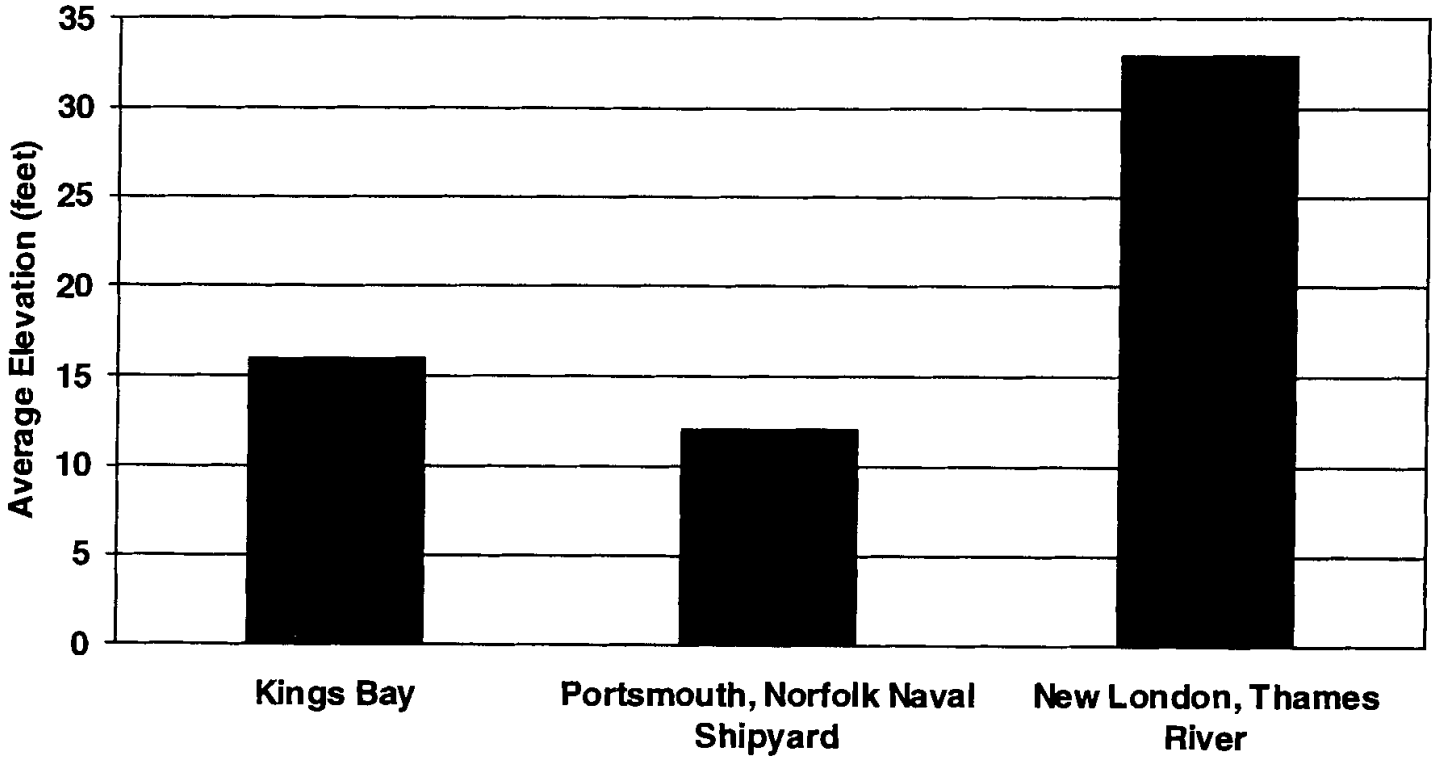
Source: Department of Homeland Security

Overall mortality rates in New London County are lower relative to Camden County and Norfolk city.



Source: U.S. Center for Disease Control

New London has a higher average elevation, which may reduce its risk for flooding.



Source: Western CT State University

Physical Infrastructure

- The road and bridge conditions are generally comparable in all three regions
- Camden County has a high water table and relatively poor soils

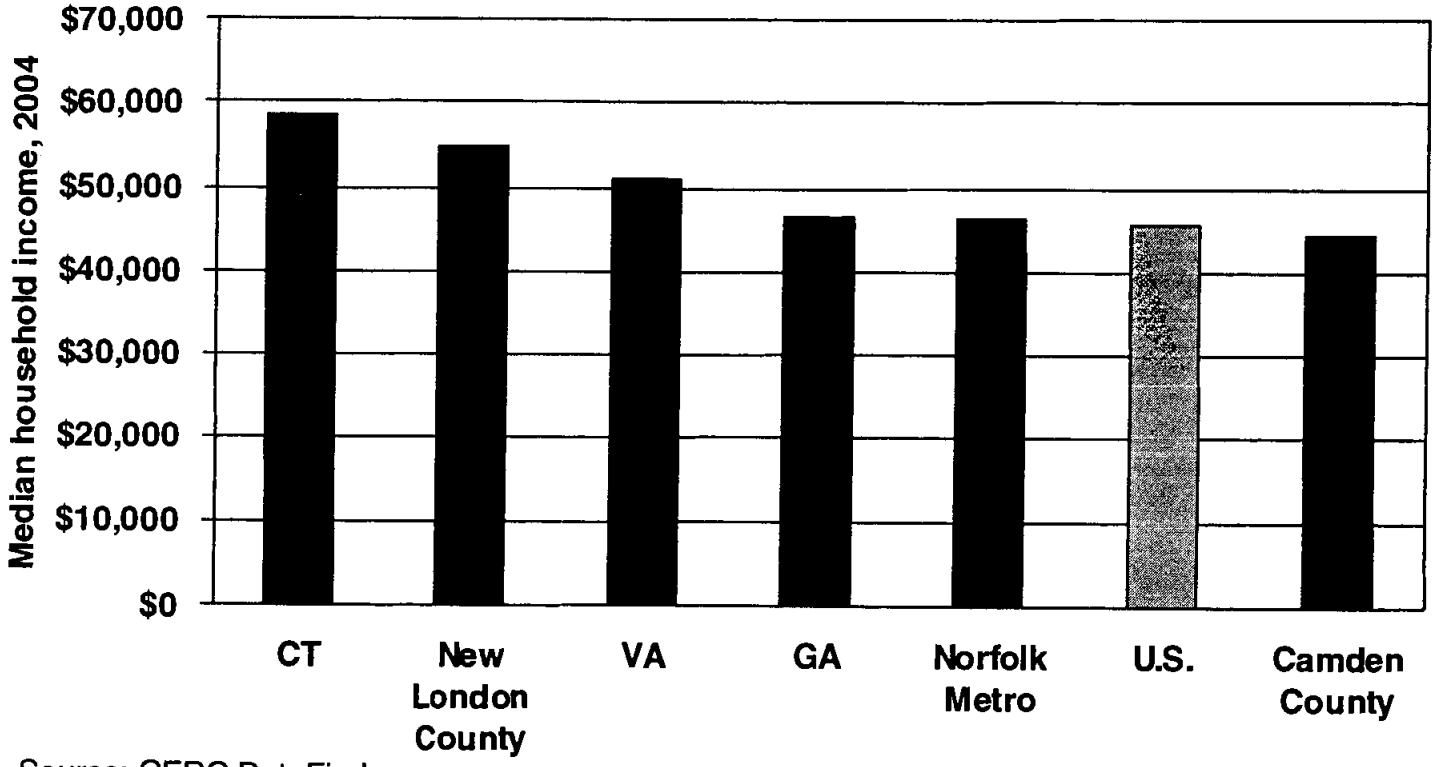
Source: CT DECD

Dredging Frequencies

- Dredging is an occasional activity in New London County, an ongoing one in Camden County, and occurs somewhat occasionally in the Norfolk metro.

Source: CT DEP

Median Household incomes are highest in Connecticut and New London County



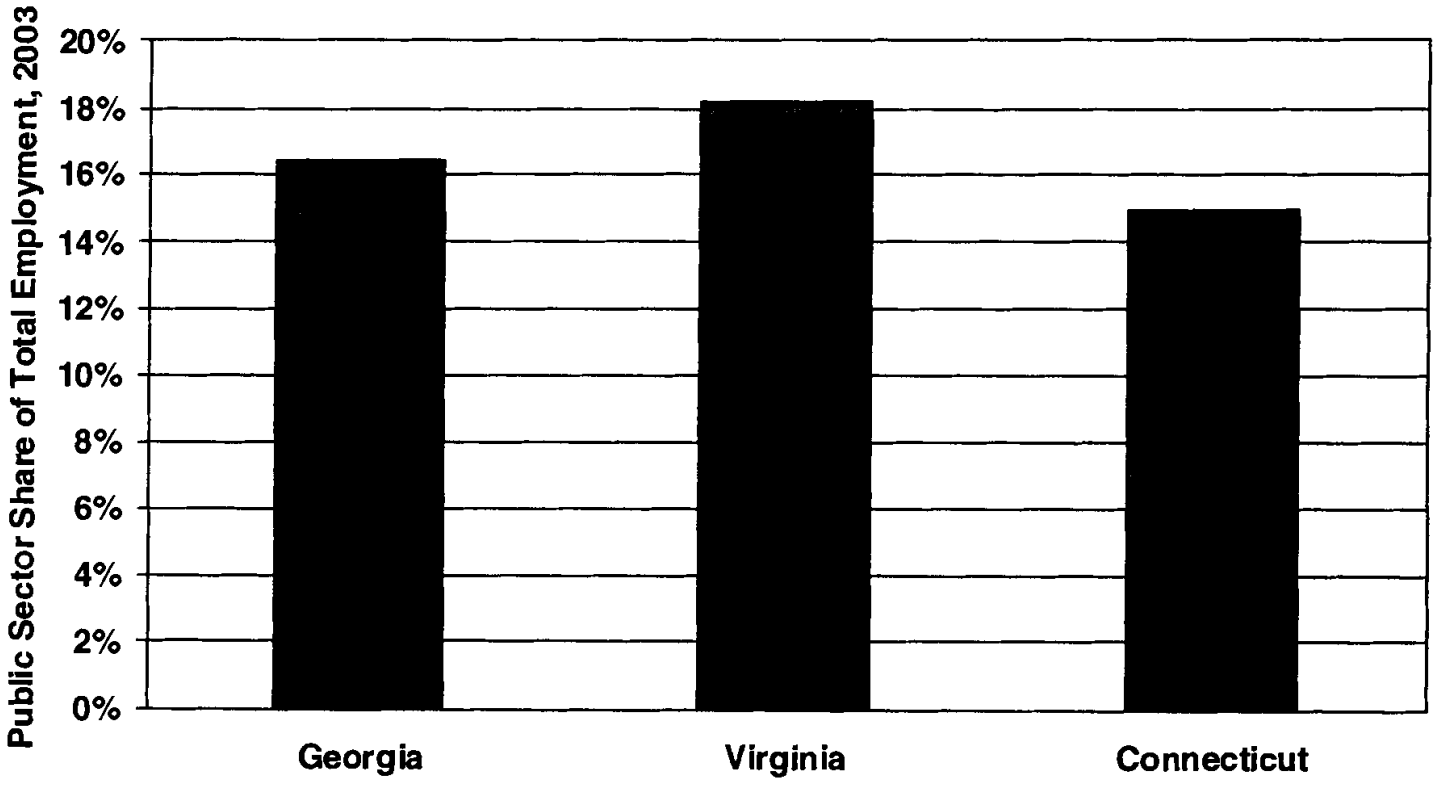
Source: CERC DataFinder

Veterans Utilize New London Submarine Base Resources

- More than 10,600 DoD retirees live in Connecticut. Many of these veterans look to the sub base for resources, not to mention their spouses and dependents and those living in western Massachusetts and Rhode Island.

Source: DoD, Office of Actuary

Connecticut has a relatively "lean" government staff—public sector employment is 15% of total employment, compared to 16.4% in Georgia and 18.2% in Virginia.



Source: U.S. BLS

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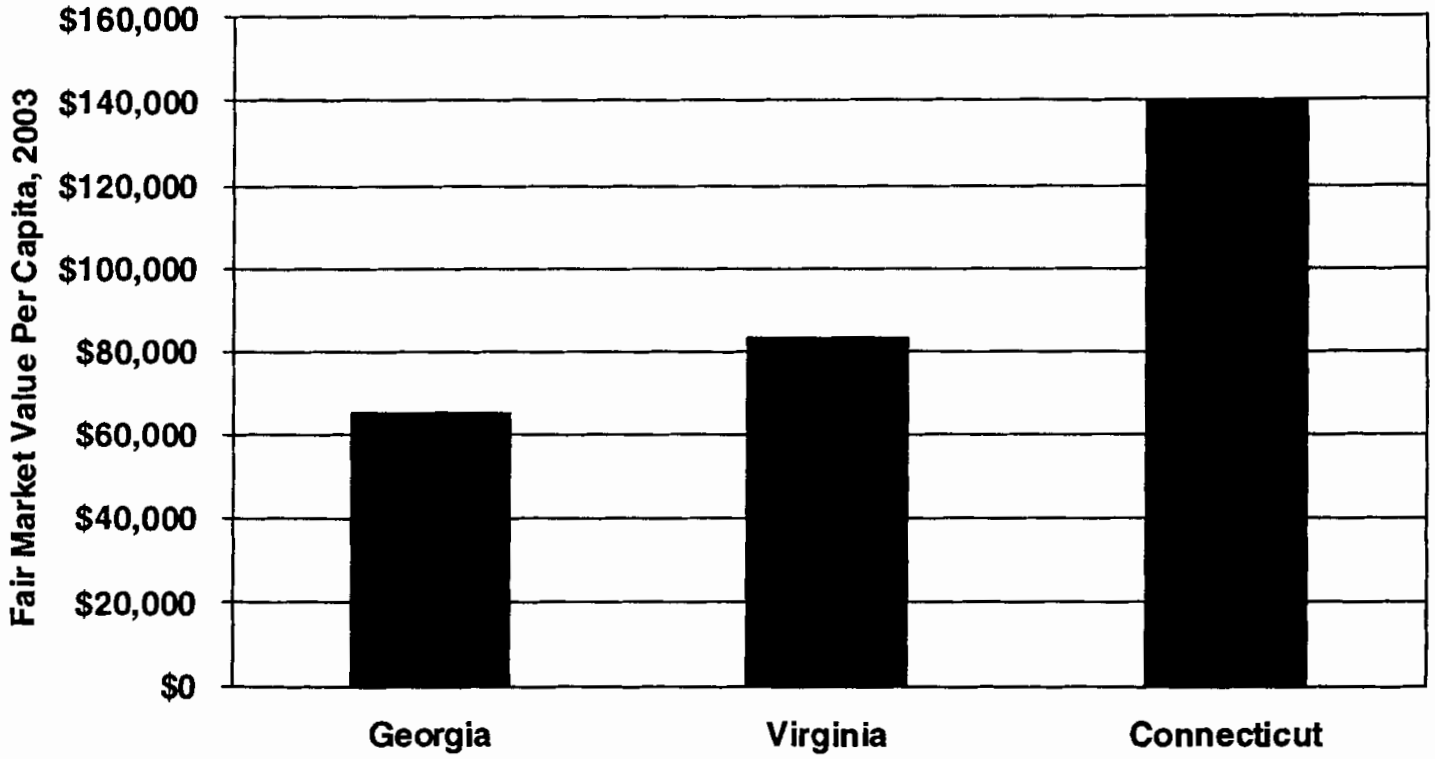


Sources: CT Office of Policy and Mgmt; VA Dept of Taxation; GA Dept of Revenue

HOMELAND SECURITY ISSUES FOR BRAC
Connecticut Department of Emergency Management and Homeland Security

- The Groton/New London area is a target-rich region. Its tourism and gaming industry make it vulnerable to terrorist attacks. The Mohegan Sun and Foxwoods Casinos draw between 40,000 and 60,000 patrons per day. The region is home to the 2005 Cerebral Palsy International Sports and Recreation Associations (CP-SIRA). Other tourist attractions include the Mystic Seaport and Aquarium, the Op Sail event, and the annual July fireworks display which draws a crowd of approximately 200,000. The I-95 corridor is one of the most heavily traveled roads during the summer months, with thousands of motorists traveling this area every day.

- **Key Assets include:**
- *General Dynamics -- Electric Boat Shipyard;*
- *Dow Chemical Company;*
- *Amerada Hess Petroleum Facility;*
- *Pfizer Pharmaceuticals;*
- *Dominion/Millstone Nuclear Power Station; the Mohegan Sun Casino and Foxwoods Casino; Thames Shipyard and Repair Company;*
- *U.S. Coast Guard Academy;*
- *The Fisher Island and Cross Town Ferries;*
- *Cargo ships and tankers utilizing shipping lanes in Long Island Sound;*
- *The deep water Port of New London, serving as a port of call for cruise ships;*
- *Fisher's Island;*
- *Block Island; and,*
- *Plum Island, a federal research facility specializing in animal diseases is located approximately ten miles from the New London coastline.*

- The location of the Submarine Base with its own Fire Department and HAZMAT Team is critical in responding to other U.S. ports on the eastern seaboard including Newport, Rhode Island, which hosts the Naval War College and the Underwater Systems Program. Submarines and other naval assets coming from Virginia would not be able to respond as quickly nor have the "omnipresence factor" that exists today because of the location of the base in New London/Groton.

- The U.S. Navy has increased boat patrols in the area in addition to the United States Coast Guard, and their presence is an effective deterrent to anyone contemplating a maritime attack in the area.

- Both the Submarine Base and the U.S. Navy have been leaders in regional counter-terrorism efforts. The Base has responded to emergencies from South Weymouth, MA to New York City. Because of their unique skills, they represent a key federal asset for Southern New England.

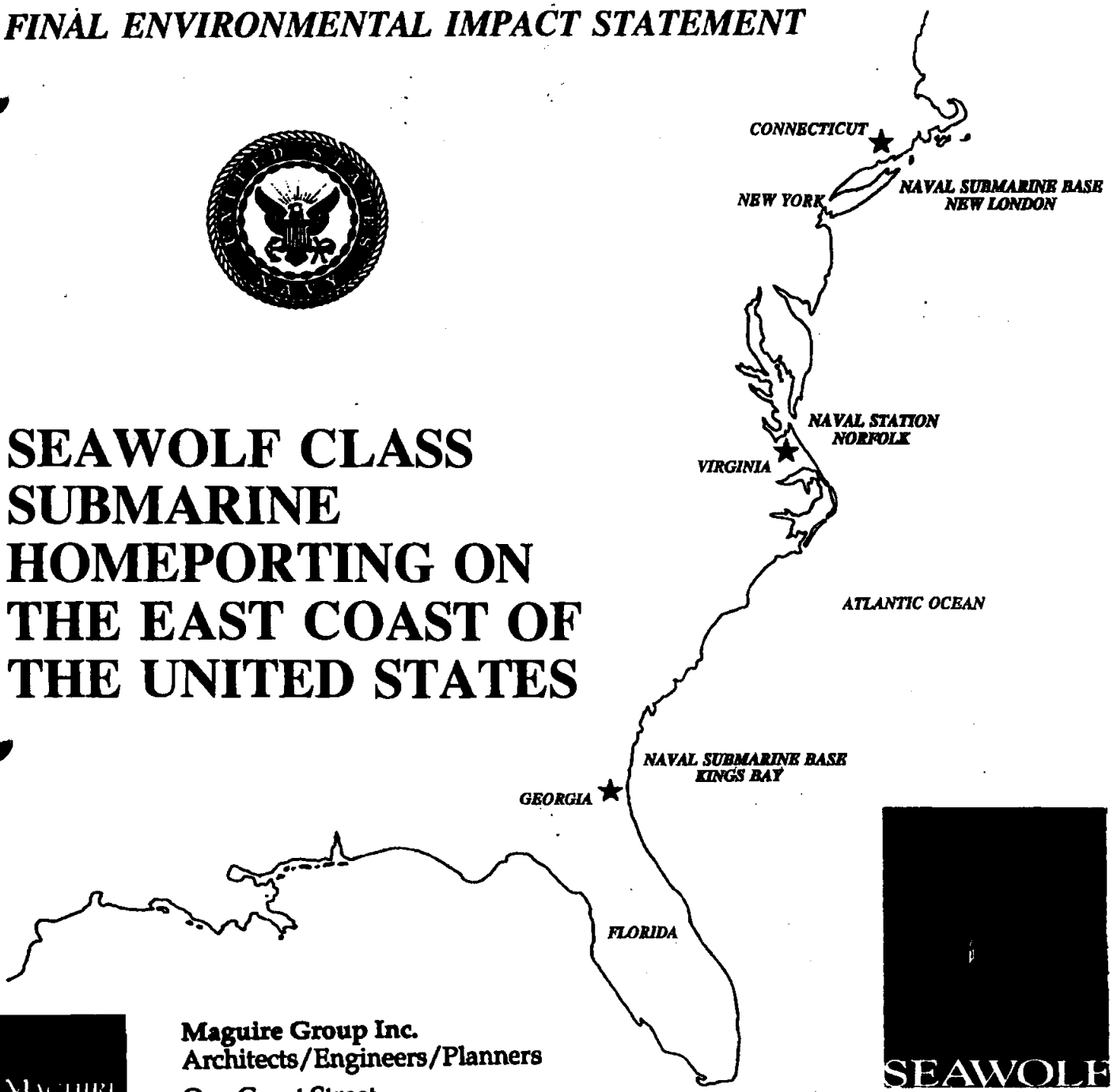
- Closure of the Submarine Base is a multi-state issue. If this federal asset is eliminated, there will be no other core group of federal emergency responders of this caliber in New England. This federal asset is important not only to Connecticut, but also to New York, Rhode Island, and Massachusetts.

- The Submarine Base is the largest federal asset in the area and would be extremely critical to the "target rich" area in case of any mass casualty incident. As noted in Connecticut's Southeastern Regional Emergency Plan, the Base is a key asset that responds to the surrounding communities. Southeastern Connecticut, which has relied on the Base and its personnel for so many critical emergency services, would be forced reevaluate its emergency response plans. Some communities may need to hire full time firefighters in an effort to maintain the "status quo" response that exists today, with costs in the vicinity of $5.6 million.

JLL

FINAL ENVIRONMENTAL IMPACT STATEMENT

SEAWOLF CLASS SUBMARINE HOMEPORTING ON THE EAST COAST OF THE UNITED STATES



Maguire Group Inc.
Architects/Engineers/Planners
One Court Street
New Britain, Connecticut 06051

SEAWOLF

ROBERT K. OSTERMUELLER
Senior Project Manager
Development &
Environmental Services

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Department of the Navy
Commander-In-Chief
U.S. Atlantic Fleet
Norfolk, Virginia

Prepared in accordance with:
National Environmental Policy Act
Section 102 (2) (C)

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR SEAWOLF CLASS SUBMARINE HOMEPORTING ON EAST COAST OF THE UNITED STATES

Contact:
Mr. Robert Ostermueller
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway
Lester, Pennsylvania 19113-2090
Telephone Number: 610-595-0759

Abstract:

This Final Environmental Impact Statement (FEIS) addresses the need, alternatives, and environmental consequences of homeporting three SEAWOLF class submarines at an existing submarine homeport on the east coast of the United States. This document supersedes the Draft Environmental Impact Statement (DEIS) for SEAWOLF Class Submarine Homeporting on the East Coast of the United States, dated February 1995. Naval Submarine Base New London, Naval Station Norfolk, and Naval Submarine Base Kings Bay were each evaluated as potential homeports. The effects of dredging to accommodate the larger dimensions of the SEAWOLF class submarine; alternatives to dispose of dredge sediments; and facilities requirements to accommodate the submarines, crews, and families at each location alternative are presented. The preferred alternative is to homeport the SEAWOLF class submarines in Naval Submarine Base New London. The primary impact associated with this action is dredging and disposal of 1.1 million cubic yards (800,000 cubic meters) of dredge sediment from the Thames River.

This FEIS presents and responds to comments on the DEIS that were received from Federal, state and local agencies and the general public. Throughout the document, text revisions and modifcations that have occurred since publication of the DEIS (with the exception of minor typographical corrections) are indicated by a double vertical line appearing in the margin. Section 10, Comments and Responses, is an entirely new section; although the vertical line in the margin does not appear in section 10, no part of this section appeared in the DEIS.

Prepared by:
MAGUIRE GROUP INC.
New Britain, Connecticut
July 1995

EXECUTIVE SUMMARY

This document is a Final Environmental Impact Statement (FEIS) prepared pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) Regulations Implementing NEPA (40 CFR 1500-1508) and the Department of the Navy Environmental and Natural Resources Program Manual (OPNAVINST 5090.1B: Chapter 2). This FEIS is intended to analyze the potential environmental impacts as well as operational and economic factors associated with homeporting three SEAWOLF class submarines on the east coast of the United States to aid Navy decision making. This document also provides a response to comments made by federal, state and local officials, special interest groups, and private citizens on the Draft Environmental Impact Statement (DEIS), which was published in February 1995.

Project History

In 1991, a DEIS was prepared for the proposed dredging of the Thames River for transit of the lead ship of the SEAWOLF class submarines (SSN 21) from its manufacturer, Electric Boat, to pier 33 at the Naval Submarine Base New London (SUBASE NLON) for operational testing, known as sea trials. The dredging of the river to -41 feet mean low water (MLW) (12.5 meters (m)) and piers 32 and 33 to -43 feet MLW (13.1 m) resulting in the removal of 2.7 million cubic yards (yd^3) of sediment was proposed. At that time, no decision as to the homeport location for the lead ship and other SEAWOLF submarines had been made.

In 1994, President Clinton announced that the preferred homeporting alternative for the SEAWOLF submarines was SUBASE NLON. Funding for construction of two SEAWOLF submarines has been authorized, while funding for a third and final SEAWOLF is currently in debate. This homeporting decision modified the proposed action to the degree that the NEPA process needed to be re-initiated. Scoping hearings were held for the proposed action in August 1994 and a DEIS was issued in February 1995. Public hearings were held in March 1995 to solicit comments on the DEIS, resulting in the preparation of this document, the FEIS.

This FEIS contains a separate section (10) which presents DEIS comments and responses. The entire DEIS (except for some appendices) has been reproduced with comment responses incorporated into this document. Also, modifications to the DEIS text including clarifications and new information have been incorporated into this FEIS. In instances where the DEIS text has been modified in this FEIS, a vertical line along the right hand margin appears to identify the word, sentences, paragraphs or graphical items that have been changed.

Proposed Action

The Federal action is the proposed homeporting of three SEAWOLF class submarines at an appropriate Naval facility on the east coast of the United States. The first submarine of the class (SSN 21 SEAWOLF) will be ready for permanent homeporting in December 1997. The SEAWOLF and the second SEAWOLF class submarine (SSN 22 CONNECTICUT) are currently under construction at Electric Boat in Groton, Connecticut. The second SEAWOLF class submarine will be delivered in the summer of 1998. The third SEAWOLF class submarine, once funded, is expected to be delivered in 2002.

SEAWOLF class submarines are a follow-on class to the Los Angeles class (SSN 688). The SEAWOLF class submarine is an attack submarine which will possess reduced acoustic and electromagnetic signatures, higher top speed, greater maximum operating depth, greater ordnance capacity and other technological improvements commensurate with the state of the art in submarine design.

The three submarines of the SEAWOLF class will replace existing assets as other submarines are inactivated. These three attack submarines will also be incorporated into the US Atlantic Fleet over a six year period. Since these ships are replacements for existing submarines, and because they will be delivered to the Fleet over a six year period, the impact on existing facilities will be minimal. There are differences in how the three locations satisfy the requirements for selecting a homeport and these factors will be analyzed

Because of the larger dimensions of the SEAWOLF class submarine, deepening of the existing channels and berths where the ships will be moored may be required. Dredging and disposal of marine sediments to accommodate the SEAWOLF class submarines are the only substantial activities envisioned in the homeporting action.

Alternatives

Eleven locations on the US east coast have been considered as candidates to serve as homeport for the SEAWOLF class submarines. All eleven Naval sites were compared and ranked for homeport suitability. Eight sites were eliminated from detailed evaluation given limited existing assets and the probable extensive financial and environmental impacts involved in needed upgrades or new development. Three locations were selected for further evaluation as each is an existing homeport for submarines.

The three candidate homeports are:

- Naval Submarine Base New London (SUBASE NLON) Groton, CT
- Naval Station Norfolk (NAVSTA NORVA) Norfolk, VA
- Naval Submarine Base Kings Bay (SUBASE KB) Kings Bay, GA

Each potential SEAWOLF homeport is analyzed and ranked according to fourteen evaluation criteria. These criteria range from operational considerations and environmental impacts to strategic significance or military value. The criteria are defined and reasons for the ranking are depicted. Environmental consequences are summarized as part of the evaluation of alternatives. Information on the key features of each homeport alternative for all of the evaluation criteria are depicted in Table ES-1. The unweighed rankings give the homeport alternative with the most suitability, least adverse environmental impact, or highest positive effect, the lowest positioning score.

Within each location, alternative types of dredging equipment and methods of dredge disposal are evaluated as there are differing environmental and cost considerations involved in each. Hydraulic and mechanical dredging equipment are considered. Open water, upland, combination of open water/upland and sediment treatment are evaluated as disposal options. For the New London alternative, open water disposal is best served through the use of an enclosed clamshell bucket dredging to a barge for transport to the designated open water site in Long Island Sound (LIS). The New London Disposal Site (NLDS), located due south of New London harbor, is the preferred location for disposal of dredged sediment, while the use of the Central Long Island Sound Disposal Site (CLISDS), located off New Haven harbor, is also a feasible option.

Hydraulic dredging is more suitable for both the Norfolk and Kings Bay alternatives as nearby upland sites would be used for sediment disposal for the SEAWOLF homeporting project.

Summaries of the impacts of homeporting the SEAWOLF at each of the three candidate homeports are provided below:

Location	Impact Summary
SUBASE New London	Alongside Berths 8N, 8S and 10S as well as portions of the Thames River channel must be deepened; an estimated 1.1 million yd^3 (800,000 m^3) of sediment will be removed and disposed of at a designated open water site in LIS; some of the sediments within the dredging envelope are contaminated with metals and polyaromatic hydrocarbons (PAHs) requiring covering of the contaminated sediment with non-contaminated sediment as a condition to use the LIS open water site; temporary impacts to water quality, benthic organisms and aquatic habitat will occur from both dredging and disposal activities; similarly, temporary impacts to air quality, ambient noise levels and aesthetics can be expected during the dredging operations. To sustain SEAWOLF-capable depths of water at the SUBASE over its 30 year life cycle, maintenance dredging will be required twice.

TABLE ES-1
HOMEPORT EVALUATION MATRIX
(RANK)*

EVALUATION CRITERIA	NSB NEW LONDON	NS NORFOLK	NSB KINGS BAY
1. Strategic Value	Excellent synergism of all submarine missions; shortest transit time to probable deployment areas (1)	Major concentration of Fleet warships; two days greater transit to deployment areas (2)	Dedicated to TRIDENT; no history of attack submarine use; four days greater transit to deployment areas (3)
2. Operational Suitability	Specialized homeport for attack submarines with nearby submarine planning yard, tactical development and research (1)	Homeport to attack submarines with need to liaison with New London submarine services (2)	Physically capable with need to liaison with New London submarine services (3)
3. Quality of Life	Full service support for crew and families in historic home of Submarine Force (1)	Strong Naval/Military cluster for support of crew and families; On-base family housing shortfall; traffic issues (2)	Strong support with single warfare submarine focus; On-base family housing shortfall with ample community housing; rural environment (1)
4. Maintenance Capability	Existing Naval Submarine support facility for current 22 operational submarines capable of SEAWOLF support (1)	Anticipate capability to meet SEAWOLF requirements. Shore intermediate maintenance activity under development (1999) (2)	TRIDENT Refit Facility can handle SEAWOLF with manpower expansion (3)
5. Training Capability	Cluster of submarine training including Class specific training available (1)	Advanced and team training available; some individual and team training in New London required (2)	TRIDENT Training Facility must expand capability or training in New London will be required (3)
6. Integrated Logistics Support	Existing NSSF has in-place easily accessible ILS to support variety of attack boats (1)	Operations consist of a SIMA & FISC. More distant from piers and not specifically oriented to attack submarines (2)	Effective ILS with TRIDENT refit organization. No dedicated facilities for attack boats. (3)
7. Ordnance Capability	Ordnance facilities available. No ordnance handling restrictions. (1)	No long-term magazine available at NAVSTA. All support req'd from NWS Yorktown. Some ordnance handling restrictions (3)	New magazine construction required. No ordnance handling restrictions. (2)
8. Initial Dredging	1.1 million yd^3 ($4.50-6.50/$yd^3$) (3)	325,000 yd^3 ($1.20-1.70/$yd^3$) (1)	150,000 yd^3 ($7-8/$yd^3$ > -40 ft MLW for limerock) (2)

HOMEPORT EVALUATION MATRIX (RANK)*			
EVALUATION CRITERIA	NSB NEW LONDON	NS NORFOLK	NSB KINGS BAY
9. Maintenance Dredging	Low siltation/shoaling rates; periodic maintenance required every 14 years (1)	High siltation/shoaling rates; periodic maintenance required every 4 years (2)	Very high siltation/shoaling rates; periodic maintenance required every 1 year (3)
10. Dredge Sediment Disposal (including long-term capacity)	Two open water sites available with 50+ years capacity; no feasible upland alternative available (2)	Regional upland disposal available; 20 year capacity, but great demand; open water for clean sediment, only (3)	Navy upland site available; 20+ year capacity @ 1 million yd^3 per year maintenance dredging (1)
11. Water Quality Impacts	Temporary during dredging/disposal; contaminated sediments (3)	Temporary during dredging; frequent w/needed maintenance over long term; contaminated sediments (2)	Temporary although frequent with needed maintenance; clean sediments (1)
12. Natural Resources Impacts	Minimum disturbance; avoid fish spawning season; monitoring at LIS disposal sites (2)	Minimum disturbance, manage endangered species concerns (1)	Minimum disturbances although numerous endangered species habitat (3)
13. Built Environmental Impacts	Available infrastructure, positive economic impact; minimal utility/traffic issues (1)	Minor issue in larger context (2)	Incremental growth at base affects rural community (3)
14. Community Support	Strong industry, community, government and citizen support for Naval submarine service (1)	Strong industry community, government and citizen support for Navy (1)	Strong industry community, government and citizen support for Navy (1)
OVERALL RATING	20	27	32

*Lower ranking preferred resulting from: greater capability, lower adverse impacts or greater positive impact.

Submarine maintenance and other support needs of the SEAWOLF can readily be met at New London without new construction or physical expansion of existing facilities. Three SEAWOLF class submarines will be phased into the existing homeported attack submarines at the SUBASE over a six year period resulting in fewer total homeported submarines by the year 2000 than there are in 1995.

Considering this replacement concept, New London will absorb the influx of 402 SEAWOLF class crew members and another 600 family members within existing Navy housing or in the nearby community; positive economic impacts from homeporting will provide needed stimulation to the regional economy.

NAVSTA Norfolk

Approximately 325,000 yd^3 (250,000 m^3) of dredging will be required to deepen water depths between Piers 22 and 23 in Norfolk; there are elevated levels of metals and PAHs in the dredge sediment; sediment would be dredged via hydraulic means to the nearby Craney Island disposal site where contaminated dredged material is accepted, although long term capacity may be an issue; temporary impacts to water quality, benthic organisms and aquatic habitats will occur as will short term effects to air quality and noise during the dredging operation.

Given historical siltation rates, maintenance dredging would have to occur six times over SEAWOLF's life cycle.

Submarine maintenance and other support services are readily available at Norfolk. Housing, particularly family housing, is limited on the base and the introduction of the SEAWOLF would replace families currently on waiting lists; ample housing is available in the community. Similar to New London, Norfolk serves as homeport for attack submarines; and over the timeframe when the SEAWOLF class submarines will be phased in, this total submarine fleet is planned to be reduced by more than half (from 25 to 10).

Economic impacts would be beneficial, however, the relative scale of three submarines in the context of one hundred vessels being homeported in Norfolk is minor.

SUBASE Kings Bay

The SEAWOLF would be berthed at layberths 1, 2, and 3 at the former POLARIS/POSEIDON site (Site 6) in this TRIDENT homeport; approximately 150,000 yd^3 (114,000 m^3) of sediment must to be removed to accept the increased draft of the SEAWOLF class. Dredge sediment is generally clean sand, although limerock is expected to be encountered below -40 feet (ft) (12.2 meters (m)) mean low water (MLW). Sediment can be hydraulically dredged and disposed of at Navy owned upland sites near the project area; temporary impacts to water, air and aquatic habitats would occur; precautions are needed during dredging and increased vessel movements to avoid any adverse impacts to sensitive marsh and coastal ecosystems which provide habitat for numerous threatened and endangered species.

Kings Bay experiences a significant shoaling and siltation rate which requires annual dredging to maintain project depths; as such, maintenance dredging would occur 30 times during the life of the SEAWOLF.

Capacity in submarine maintenance and other support services is adequate although levels of effort would need to be increased and equipment adapted to support attack submarines. Homeporting the SEAWOLF class submarines in SUBASE Kings Bay does not represent a replacement given the current dedicated TRIDENT mission of the base.

Housing, particularly for families, is limited on base; ample housing is available within a 60 minute commute of the base.

Homeporting the SEAWOLF would provide substantial economic benefits to the community as the direct influx of 402 crew and 600 family members would be very significant to this rural county of 30,000 population; maintenance of public facilities and infrastructure could be an issue.

The radiological effects of homeporting and conducting maintenance on SEAWOLF submarines have been analyzed for each alternative. These analyses show that the radiological impacts from each alternative are negligible, and indistinguishable between alternatives.

The SUBASE NLON alternative will better serve the strategic and operational missions of the SEAWOLF. The synergism of submarine planning, tactical deployment, research, and training that is available in New London greatly exceeds that of other alternatives. Adverse environmental impacts of homeporting the SEAWOLF class submarines in New London will be short term, related to the immediate timeframe of the dredging and disposal activities. Selection of New London as the preferred alternative will result in an environmentally sound, cost effective and implementable homeport for the SEAWOLF, which, is in the best interests of the country's national defense.

Description of the Preferred Alternative

For SUBASE New London to be able to serve as homeport, portions of the navigation channel and alongside two piers must be dredged to SEAWOLF project depths. Dredging the Thames River and disposal of dredged sediment are the only substantial activities needed for the SUBASE to serve as homeport.

In the DEIS (Navy 1995), the proposed dredging area was the full channel width from the I-95 Bridge to pier 33 at northern end of the SUBASE. The dredging volume was 1.7 million yd^3 (1.3 million m^3). Since the issuance of the DEIS, the Navy has evaluated ways of reducing the dredged material volume as a means of minimizing environmental impact. Specifically, the selection of piers south of piers 32/33 for use as SEAWOLF berths and limitation of the channel dredging width within known contaminated areas is proposed. To implement the preferred alternative, the following related actions are required:

- Dredge 1.1 million yd^3 (800,000 m^3) of sediment from the Thames River from the I-95 bridge to pier 17 and alongside berths 8N, 8S and 10S to obtain depths of -39 ft (11.9 m) MLW and -42 ft MLW (12.8 m), respectively. This represents a reduction of 600,000 yd^3 (459,000 m^3).

- Dispose of dredged sediment at the New London Disposal Site (NLDS);

- Utilize existing accommodations for 402 crew and 600 additional family members in available on-base housing or in the community; and

- Use available maintenance, training, tactical development and research assets for attack submarines that currently exists at SUBASE NLON or the immediately surrounding community.

Environmental Consequences of the Preferred Alternative

The primary consequences of implementing the proposed action will be the effect on the environment of the Thames River and the open water disposal sites in LIS.

The Thames River is a tidal estuary formed at the confluence of the Yantic and Shetucket Rivers in Norwich, Connecticut. It extends southward 16 miles (mi) (25.6 kilometers (km)) to LIS at Groton/New London. The SUBASE is located on the east banks of the Thames River approximately seven miles from LIS.

The proposed dredging for the SEAWOLF homeporting project will deepen the navigation channel of the Thames River north of the I-95 Bridge to the pier 17 at the SUBASE, a distance of approximately 2.5 mi (4.0 km), to -39 ft (11.9 m) MLW from existing channel depths averaging -36 ft (11 m) MLW. Similar depths alongside the proposed homeport Piers 8 and 10 will be deepened to -42 ft (12.8 m) MLW.

The NLDS is a one square nautical mile area located approximately 2.5 miles due south of the mouth of the Thames River. The site is actively used for disposal of dredged marine sediments. Use of the NLDS is preferred because of its proximity to the dredging area. However, use of CLISDS is a viable disposal alternative. The NLDS is closely regulated and monitored by the Army Corps of Engineers (ACOE). The site has been used primarily for placement of sediment dredged from the Thames River. Studies have shown that with proper management techniques in place, no significant short-term or long term environmental effects have occurred at the site. It is also the least expensive disposal option given its relatively short distance from the area of proposed dredging. For these reasons, the NLDS is the preferred disposal location.

Sediment sampling programs have been conducted by the Navy in 1990, 1992, 1994 and 1995 for the purpose of characterizing existing biological, physical, and chemical conditions of the sediment

to be dredged from the Thames River. Analysis of samples has shown that sediments to be dredged are very similar to sediments previously dredged in the Thames River and dumped at the NLDS. Sediments from the channel tend to be cleaner than sediments near the pier areas.

Benthic toxicity results on project sediments indicate that sediments to be dredged are not toxic to bottom-dwelling organisms. Bioaccumulation testing has revealed that channel sediments near the SUBASE piers could cause accumulation of organic contaminants in the tissues of benthic organisms. Also, sediments at piers 8 and 10 contain comparable contaminant levels and would likely cause similar bioaccumulation effects. These sediments would be capped at the disposal site with clean sediments from the channel north of the I-95 bridge to an area just south of the SUBASE. Identification of sediments suitable for use as capping material has been approved by Federal and state regulatory agencies.

A capping plan which uses non-contaminated sediment from the proposed project to cover contaminated sediment from the pier areas will be employed for open water disposal.

A study of the impact of the SEAWOLF project dredging on the hydrodynamics of the river concludes that there will be insignificant changes or impacts to the riverine dynamics and no effect on the existing periods of low dissolved oxygen in the upper reaches of the river.

Dredging by clamshell bucket will have temporary impacts to aquatic organisms and water quality in the river. Removal of sediment will temporarily increase turbidity levels in the water column, but these levels will return to normal conditions soon after dredging with no appreciable damage to finfish and other aquatic biota. Very low concentrations of chemicals that have been introduced into the river from various point and non-point source discharges and have settled into the sediments will be released into the water column during dredging.

Benthic organisms living in and near the river bottom at the point of dredging will either be transported to the scow and eventually the disposal site or killed. Comparison of benthic communities sampled as part of the TRIDENT Dredging EIS in 1978, and communities sampled in 1990 for this project, reveals very similar composition and abundance of species. This suggests that successful recolonization has occurred and similar recovery is expected for this project.

Information from several monitoring (DAMOS) reports issued by the ACOE reveals that sediment deposited at the NLDS from the Thames River has not caused any significant damage to the ecology or water quality of that area. Studies of disposal mounds in LIS have shown that chemicals appearing in capped material have not migrated into the cleaner sediment layers near the surface. Research has also shown that material deposited at NLDS tend to remain in their original position.

Body burden analyses of benthic organisms at the NLDS have been performed by the ACOE, UCONN, National Oceanic and Atmospheric Administration (NOAA) and Connecticut Department of Environmental Protection (CTDEP). Their studies have shown no signficant bioaccumulation of contaminants as a result of dredged material disposal. This suggests that fish and other aquatic

organisms in the vicinity of the disposal site do not contain elevated contaminant levels and therefore no human health risks are expected.

Consequences of the project on the socioeconomics of the region are expected to be positive. Over the long term, direct and indirect payroll for the full three submarine SEAWOLF crews is expected to exceed $20 million annually. Housing, schools and public infrastructure are adequate to absorb the influx of SEAWOLF crews and families.

Mitigation

The following measures will be employed to ensure minimization of impacts to the Thames River and disposal site environment:

- Use of enclosed clamshell bucket to minimize spillage of dredge sediment from dredge equipment;
- Adherence to no barge overflow requirements;
- Capping of dredged sediment deemed "contaminated" with cleaner sediments;
- Observance of seasonal restrictions on dredging;
- An intensive series of hydrographic monitoring of disposal site during and after disposal operations to ensure proper placement of sediment;
- Sediment profile photography of the disposal mound and;
- Use of precision navigational equipment and a taut wire buoy by the dredging contractor.

Coordination and Public Involvement

Considering the commencement and publication of a related DEIS on proposed sea trials for the SEAWOLF, coordination with the public and resource agencies for this project has been on-going since 1990. SEAWOLF sea trials DEIS scoping and public hearings were held in 1991, during which the public was informed and comments were received on dredging issues related to accommodating the SEAWOLF at SUBASE NLON.

Coordination has expanded with this homeporting DEIS to include not only the New London region but Norfolk and Kings Bay as well. Scoping meetings were held in each of the three locations in August 1994. A separate scoping session was requested and held with representatives of the Fishers Island Conservancy and Connecticut Fund for the Environment in September 1994. Comments from the public have been used to identify key issues in each location. Regulatory agencies in each area

have also been contacted and correspondence and summaries of communication are included in section 14.1 of this FEIS.

Public hearings on the DEIS (Navy 1995) were held in March at each of the candidate homeport locations. Comments have been received and responded to as presented in section 10.

Sediment testing requirements have been a key consideration. Over a dozen meetings and many more informal discussions have occurred between the Navy and state/Federal regulators. As a result, the tests undertaken and reported in this FEIS, including suspended phase bioassays, represent the most comprehensive and up-to-date characterization of sediments in the history of Thames River dredging.

Recently, Federal and state permits have been applied for by the Navy. On July 5, 1995, a section 401 Water Quality Certificate was issued by the CTDEP for the SEAWOLF Homeporting Project. Also, in conjunction with that certificate, the CTDEP concurred with the Navy's determination that its proposed activities are consistent with the State's federally approved coastal management program. The water quality certificate authorizes disposal at the NLDS only. Should it become necessary to apply for a modification to authorize disposal at the CLISDS, CTDEP has directed that such an application must include: "sediment sampling for the presence, abundance and stratification of *Alexandrium tamarensis* cysts..." (CTDEP Water Quality Certificate, WQC-GW-95-029, dated July 5, 1995). The Navy will conduct the appropriate sampling and analysis should it become necessary to request the change in disposal sites.

The Navy's record of decision (ROD) will be published in the Federal Register in August 1995 and distributed to recipients of the FEIS.

SEAWOLF CLASS SUBMARINE HOMEPORTING ON THE EAST COAST OF THE UNITED STATES FINAL ENVIRONMENTAL IMPACT STATEMENT

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List of Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
ACOE	Army Corps of Engineers
ACRS	Advisory Committee on Reactor Safeguards
AEC	Atomic Energy Commission
AIWW	Atlantic Intracoastal Waterway
ARMP	Archeological Resource Management Plan
ASHT	Advanced Special Hull Treatment
BEQ	Bachelors Enlisted Quarters
BFR	Basic Facility Requirements
BOD	Biological Oxygen Demand
BOQ	Bachelors Officer Quarters
BRAC	Base Closure and Realignment Act
CAA	Clean Air Act
CBLAB	Chesapeake Bay Local Assistance Board
CCMA	Connecticut Coastal Management Act
CDOT	Connecticut Department of Transportation
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental, Response, Compensation and Liability Act ("Superfund")
CFR	Code of Federal Regulations
CGNHS	Connecticut Geological and Natural History Survey
Ci	Curie
CIA	Community Impact Assistance (Program)
CIF	Controlled Industrial Facility
CDF	Confined Disposal Facility
cm	Centimeter
COD	Chemical Oxygen Demand
COTP	Captain of the Port (US Coast Guard)
CPUE	Catch per Unit Effort
CUS	Central Long Island Disposal site (New Haven Disposal)
CTDED	Connecticut Department of Economic Development
CTDEP	Connecticut Department of Environmental Protection
CTDOT	Connecticut Department of Transportation
CWA	Clean Water Act (FWPCA)
CZMA	Coastal Zone Management Act
D&S	Destroyer & Submarine
DEIS	Draft Environmental Impact Statement
DEP	Department of Environmental Protection (State of Connecticut)
DNR	Department of Natural Resources (State of Georgia)
DO	Dissolved Oxygen
DOD	Department of Defense
DOE	Department of Energy
DOSF	Defensive Ordnance Support Facility

DOT	Department of Transportation
EA	Environmental Assessment
EHW	Explosives Handling Wharf
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency (United States)
ESA	Endangered Species Act
ESQD	Explosive Safety Quantity Distance (arc)
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
fy	Fiscal Year
FHMA	Family Housing Market Area
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FISC	Fleet Industrial Support Center
fps	Feet Per Second
ft^2	Square Feet
ft^3	Cubic Feet
ft^3/s	Cubic Feet per Second
FWPCA	Federal Water Pollution Control Association
GAO	General Accounting Office
GCR	General Conformity Rule
GD	Graving Dock
gpm	Gallons Per Minute
ha	Hectare
HEPA	High Efficiency Particulate Air
HRPDC	Hampton Roads Planning District Commission
HWSTF	Hazardous Waste Storage and Transfer Facility
IMA	Intermediate Maintenance Support
IR	Installation Restoration
KBICC	Kings Bay Impact Coordinating Committee
KBAMRA	Kings Bay Archeological Multiple Resource Area
km	Kilometers
km^2	Square Kilometers
kmph	Kilometers Per Hour
LIS	Long Island Sound
LOEL	Lowest Observed Effective Level
LPC	Limited Permissible Concentration
m	Meters
m^2	Square Meters
m^3	Cubic Meters
m^3/s	Cubic Meters per Second
MGI	Maguire Group, Inc.
μg	Micrograms
mi	Miles
mi^2	Square Miles
mph	Miles Per Hour

MSF	Magnetic Silencing Facility
MILCON	Military Construction
MLW	Mean Low Water
MLLW	Mean Lower Low Water
MOA	Memorandum of Agreement
MOTKI	Military Ocean Terminal, Kings Bay
MPRSA	Marine Protection Research and Sanctuaries Act
MWR	Morale, Welfare and Recreation
NAAQS	National Ambient Air Quality Standards
NAVFAC	Naval Facilities Engineering Command
NAVSEA	Naval Sea Systems Command
NCP	National Contingency Plan
NDDB	Natural Diversity Data Base
NEPA	National Environmental Policy Act
NERBC	New England River Basins Commission
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NGVD	National Geodetic Vertical Datum
NHDS	New Haven Disposal Site (Central Long Island Disposal Site)
NHPA	National Historic Preservation Act
NLDS	New London Disposal Site
NMFS	National Marine Fisheries Service
NNPP	Naval Nuclear Propulsion Program
NNSY	Norfolk Naval Shipyard
NPS	Nuclear Power School
NNPTC	Naval Nuclear Power Training Command
NOAA	National Oceanographic and Atmospheric Administration
NOS	National Ocean Service
NO_x	Nitrous Oxides
NRC	Nuclear Regulatory Commission
NPDES	National Pollution Discharge Elimination Program
NRHP	National Register of Historic Places
NSB(KB)	Naval Submarine Base (Kings Bay)
NSB(NLON)	Naval Submarine Base (New London)
NSSF	Naval Submarine Support Facility
NUWC	Naval Undersea Warfare Center
O_x	Ozone
OPNAVINST	Chief of Naval Operation Instruction
OSHA	Operational Health and Safety Administration
OSI	Ocean Surveys, Inc.
OSI	Organism Sediment Index
OWTF	Oily Waste Treatment Facility
PAH	Polyaromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
psi	Pounds per Square Inch
PWR	Pressurized Water Reactor
RCRA	Resource Conservation and Recovery Act

REM	Roentgen-Equivalent-Man
RIDEM	Rhode Island Department of Environmental Management
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SAV	Submerged Aquatic Vegetation
SCROG	Southeastern Connecticut Regional Council of Governments
SCRPA	Southeastern Connecticut Regional Planning Agency
SIMA	Ship Intermediate Maintenance Activity
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMC	Suspended Material Concentration
SRA	Selected Restricted Availability
S/S	Solidification/Stabilization
SUBASE	Naval Submarine Base
SUBSCOL	Submarine School
SWFLANT	Strategic Weapons Facility Atlantic
TBP	Theoretical Bioaccumulation Potential
TCA	Temporary Collection Area
TCLP	Toxic Characteristic Leaching Procedure
TOC	Total Organic Carbon
TRF	Trident Refit Facility
TTF	Trident Training Facility
TSCA	Toxic Substances Control Act
USC	United States Administrative Code
USC&GS	United States Coast and Geodetic Survey
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USPHS	United States Public Health Service
UST	Underground Storage Tank
VDAPC	Virginia Department of Air Pollution Control
VDEQ	Virginia Department of Environmental Quality
VDOT	Virginia Department of Transportation
VEC	Virginia Employment Commission
VMRC	Virginia Marine Resources Commission
VOC	Volatile Organic Compound
VWCB	Virginia Water Control Board
WAA	Wide Aperture Array
WLIS	Western Long Island Sound
WPCA	Water Pollution Control Authority
WPNSTA	Naval Weapons Station (Yorktown)
WWTF	Wastewater Treatment Facility
yd	Yards
yd^3	Cubic Yards

Demographics
Lead

CERC Alissa DeJonge 860-571-6206 adejonge@cerc.com

DATA

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source	CERC
Population	46,046	1,641,583	265,499	2004	CERC DataFinder	10-Jun
Population Growth	5.5%	5.1%	2.5%	2000-2004	CERC DataFinder	10-Jun
Race: American Indian, Eskimo, Aleut	0.5%	0.4%	1.0%	2000	U.S. Census	14-Jun
Race: Asian or Pacific Islander	1.0%	2.7%	2.0%	2000	U.S. Census	14-Jun
Race: Black	20.1%	30.9%	5.3%	2000	U.S. Census	14-Jun
Race: Hawaiian/Pacific Islander	0.1%	0.1%	0.1%	2000	U.S. Census	14-Jun
Race: White	75.0%	62.5%	87.0%	2000	U.S. Census	14-Jun
Race: Other	1.4%	1.2%	2.1%	2000	U.S. Census	14-Jun
Race: Multi-Race	1.9%	2.2%	2.7%	2000	U.S. Census	14-Jun
Ethnicity: Hispanic	3.6%	3.1%	5.1%	2000	U.S. Census	14-Jun
Ethnicity: Not Hispanic	96.4%	96.9%	94.9%	2000	U.S. Census	14-Jun
Ed Attain: Less than HS Diploma	17.0%	15.6%	14.0%	2004	CERC DataFinder	10-Jun
Ed Attain: High School Graduate	33.2%	27.8%	32.0%	2004	CERC DataFinder	10-Jun
Ed Attain: Associate or Some College	33.9%	32.9%	27.8%	2004	CERC DataFinder	10-Jun
Ed Attain: Bachelor's Degree	10.2%	15.3%	15.2%	2004	CERC DataFinder	10-Jun
Ed Attain: Graduate or Professional Degree	5.7%	8.4%	11.1%	2004	CERC DataFinder	10-Jun
Household growth	5.5%	8.8%	4.8%	2000-2004	CERC DataFinder	10-Jun
Households	15,514	624,637	104,602	2004	CERC DataFinder	10-Jun
People per Household	2.82	2.52	2.42	2004	CERC DataFinder	10-Jun
Median Age (years)	29.6	34.4	37.9	2004	CERC DataFinder	10-Jun
School Age children (5-17 Years)	10,305	306,976	47,847	2004	CERC DataFinder	10-Jun
Population Density Map	included in powerpoint	included in powerpoint	included in powerpoint	2000	ESRI Business Analyst	10-Jun
Child Day Care Services & Nursery Schools	16	501	117	2005	D&B Sales & Marketing Solutions	20-Jun
Population <5 Years Old	3822	116424	15838	2004	CERC DataFinder	20-Jun
Child Day Care Services per 1,000 People < 5 Yrs Old	4.19	4.30	7.39	2004/2005	CERC DataFinder; D&B Sales & Marketing Solutions	20-Jun

Business Profile
Lead

CERC Alissa DeJonge 860-571-6206 adejonge@cerc.com

DATA	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source	CERC
Employment density maps	included in powerpoint	included in powerpoint	included in powerpoint	2006	D&B Sales & Marketing Solutions	13-Jun
Employment: Total Nonfarm	15,934	730,780	116,584	2003	Economy.com	13-Jun
Employment: Total Nonfarm Growth (%)	47%	21%	46%	1990-	Economy.com; Calcuations by CERC	13-Jun
Employment: Total Nonfarm Growth (Abs)	5,100	128,500	36,800	1990-	Economy.com; Calcuations by CERC	13-Jun
Employment: Oil & Gas Extraction	0	0	0	2003	Economy.com	13-Jun
Employment: Mining (except Oil & Gas)	0	0	72	2003	Economy.com	13-Jun
Employment: Support Activities for Mining	0	0	0	2003	Economy.com	13-Jun
Employment: Utilities	103	5,000	1,331	2003	Economy.com	13-Jun
Employment: Construction of Buildings	76	7,940	639	2003	Economy.com	13-Jun
Employment: Heavy & Civil Engineering Construction	223	4,790	207	2003	Economy.com	13-Jun
Employment: Specialty Trade Contractors	372	31,940	1,470	2003	Economy.com	13-Jun
Employment: Food Mfg	0	7,180	43	2003	Economy.com	13-Jun
Employment: Beverage & Tobacco Product Mfg	0	750	117	2003	Economy.com	13-Jun
Employment: Textile Mills	0	370	39	2003	Economy.com	13-Jun
Employment: Textile Product Mills	0	230	29	2003	Economy.com	13-Jun
Employment: Apparel Mfg	0	550	9	2003	Economy.com	13-Jun
Employment: Leather & Allied Product Mfg	0	0	0	2003	Economy.com	13-Jun
Employment: Wood Product Mfg	56	1,180	30	2003	Economy.com	13-Jun
Employment: Paper Mfg	749	2,520	306	2003	Economy.com	13-Jun
Employment: Printing & Related Support Activities	33	2,540	142	2003	Economy.com	13-Jun
Employment: Petroleum & Coal Products Mfg	0	190	11	2003	Economy.com	13-Jun
Employment: Chemical Mfg	7	850	2,808	2003	Economy.com	13-Jun
Employment: Plastics & Rubber Products Mfg	75	890	120	2003	Economy.com	13-Jun
Employment: Nonmetallic Mineral Product Mfg	70	1,320	23	2003	Economy.com	13-Jun
Employment: Primary Metal Mfg	0	430	228	2003	Economy.com	13-Jun
Employment: Fabricated Metal Product Mfg	0	3,460	191	2003	Economy.com	13-Jun
Employment: Machinery Mfg	0	4,880	328	2003	Economy.com	13-Jun
Employment: Computer & Electronic Product Mfg	0	3,390	198	2003	Economy.com	13-Jun
Employment: Electrical Equipment, Appliance, & Component Mfg	0	550	79	2003	Economy.com	13-Jun
Employment: Transportation Equipment Mfg	794	26,610	6,452	2003	Economy.com	13-Jun
Employment: Furniture & Related Product Mfg	10	630	56	2003	Economy.com	13-Jun
Employment: Miscellaneous Mfg	8	1,240	343	2003	Economy.com	13-Jun
Employment: Merchant Wholesalers, Durable Goods	43	13,040	887	2003	Economy.com	13-Jun
Employment: Merchant Wholesalers, Nondurable Goods	23	7,350	756	2003	Economy.com	13-Jun
Employment: Wholesale Electronic Markets & Agents & Brokers	81	2,390	140	2003	Economy.com	13-Jun
Employment: Motor Vehicle & Parts Dealers	240	12,090	1,800	2003	Economy.com	13-Jun
Employment: Furniture & Home Furnishings Stores	42	2,890	325	2003	Economy.com	13-Jun
Employment: Electronics & Appliance Stores	16	3,070	343	2003	Economy.com	13-Jun
Employment: Building Material & Garden Equipment & Supplies Dealers	113	6,360	1,033	2003	Economy.com	13-Jun
Employment: Food & Beverage Stores	334	14,680	2,668	2003	Economy.com	13-Jun
Employment: Health & Personal Care Stores	48	5,550	625	2003	Economy.com	13-Jun
Employment: Gasoline Stations	341	5,520	523	2003	Economy.com	13-Jun
Employment: Clothing & Clothing Accessories Stores	71	6,500	906	2003	Economy.com	13-Jun
Employment: Sporting Goods, Hobby, Book, & Music Stores	22	3,920	457	2003	Economy.com	13-Jun
Employment: General Merchandise Stores	832	18,340	1,470	2003	Economy.com	13-Jun
Employment: Miscellaneous Store Retailers	51	5,790	606	2003	Economy.com	13-Jun
Employment: Nonstore Retailers	5	2,910	473	2003	Economy.com	13-Jun
Employment: Air Transportation	0	1,070	96	2003	Economy.com	13-Jun
Employment: Rail Transportation	5	290	7	2003	Economy.com	13-Jun
Employment: Water Transportation	0	1,290	85	2003	Economy.com	13-Jun
Employment: Truck Transportation	56	6,090	342	2003	Economy.com	13-Jun
Employment: Transit & Ground Passenger Transportation	0	1,210	379	2003	Economy.com	13-Jun
Employment: Pipeline Transportation	0	290	34	2003	Economy.com	13-Jun
Employment: Scenic & Sightseeing Transportation	0	220	6	2003	Economy.com	13-Jun
Employment: Support Activities for Transportation	12	5,720	93	2003	Economy.com	13-Jun
Employment: Couriers & Messengers	1	1,340	225	2003	Economy.com	13-Jun
Employment: Warehousing & Storage	83	2,010	85	2003	Economy.com	13-Jun
Employment: Publishing Industries (except Internet)	0	3,890	372	2003	Economy.com	13-Jun
Employment: Motion Picture & Sound Recording Industries	0	2,350	93	2003	Economy.com	13-Jun
Employment: Broadcasting (except Internet)	3	1,520	83	2003	Economy.com	13-Jun
Employment: Internet Publishing & Broadcasting	0	10	0	2003	Economy.com	13-Jun
Employment: Telecommunications	70	5,750	381	2003	Economy.com	13-Jun
Employment: Internet Svc Providers, Web Search Portals & Data Process	0	2,430	175	2003	Economy.com	13-Jun
Employment: Other Information Svcs	0	180	113	2003	Economy.com	13-Jun
Employment: Monetary Authorities - Central Bank	0	90	6	2003	Economy.com	13-Jun
Employment: Credit Intermediation & Related Activities	310	18,810	843	2003	Economy.com	13-Jun
Employment: Securities, Commodity Contracts & Other Fncl Investments	21	1,450	180	2003	Economy.com	13-Jun
Employment: Insurance Carriers & Related Activities	180	3,040	366	2003	Economy.com	13-Jun
Employment: Funds, Trusts, & Other Financial Vehicles	0	110	3	2003	Economy.com	13-Jun
Employment: Real Estate	67	10,100	400	2003	Economy.com	13-Jun
Employment: Rental & Leasing Svcs	70	4,330	206	2003	Economy.com	13-Jun
Employment: Lessors of Nonfinancial Intangible Assetsed Works)	0	40	2	2003	Economy.com	13-Jun
Employment: Professional, Scientific, & Technical Svcs	513	41,850	4,873	2003	Economy.com	13-Jun
Employment: Management of Companies & Enterprises	85	9,910	354	2003	Economy.com	13-Jun
Employment: Administrative & Support Svcs	1,011	45,300	3,418	2003	Economy.com	13-Jun
Employment: Waste Management & Remediation Svcs	15	1,730	397	2003	Economy.com	13-Jun
Employment: Educational Svcs	5	13,000	1,838	2003	Economy.com	13-Jun
Employment: Ambulatory Health Care Svcs	462	22,550	3,544	2003	Economy.com	13-Jun
Employment: Hospitals	0	20,800	2,541	2003	Economy.com	13-Jun
Employment: Nursing & Residential Care Facilities	22	13,220	3,306	2003	Economy.com	13-Jun
Employment: Social Assistance	109	8,680	1,379	2003	Economy.com	13-Jun
Employment: Performing Arts, Spectator Sports, & Related Industries	28	2,130	261	2003	Economy.com	13-Jun
Employment: Museums, Historical Sites, & Similar Institutions	0	2,300	1,445	2003	Economy.com	13-Jun
Employment: Amusement, Gambling, & Recreation Industries	69	8,280	21,745	2003	Economy.com	13-Jun
Employment: Accommodation	388	12,420	4,393	2003	Economy.com	13-Jun
Employment: Food Svcs & Drinking Places	1,619	52,130	13,866	2003	Economy.com	13-Jun
Employment: Repair & Maintenance	813	9,590	984	2003	Economy.com	13-Jun
Employment: Personal & Laundry Svcs	212	10,790	1,466	2003	Economy.com	13-Jun
Employment: Religious, Grantmaking, Civic, Professional & Similar Orgs	32	13,120	736	2003	Economy.com	13-Jun
Employment: Government	5,296	149,770	17,800	2003	Economy.com	13-Jun
Establishments: Total	1,535	57,846	12,198	2005 Q2	D&B Sales & Marketing Solutions	13-Jun
Establishments: Unknown Employee Size	110	4,475	1,156	2005 Q2	D&B Sales & Marketing Solutions	13-Jun
Establishments: 1 -9 Employees	1,206	43,001	9,461	2005 Q2	D&B Sales & Marketing Solutions	13-Jun
Establishments: 10-99 Employees	197	9,253	1,473	2005 Q2	D&B Sales & Marketing Solutions	13-Jun
Establishments: 100+ Employees	18	917	118	2005 Q2	D&B Sales & Marketing Solutions	13-Jun
MilitaryEMP Share	N/A	N/A	N/A			13-Jun
Economic Base Industry (1 NAICS)	Repair & Maintenance	Water Transportation	Amusement, Gambling & Recreation Industries	2003	Economy.com; Calcuations by CERC	13-Jun
Economic Base Industry (2 NAICS)	Transportation Equipment Mfg	Museums, Historical Sites & Similar Institutions	Museums, Historical Sites & Similar Institutions	2003	Economy.com; Calcuations by CERC	13-Jun
Economic Base Industry (3 NAICS)	Gasoline Stations	Scenic & Sightseeing Transportation	Transportation Equipment Mfg	2003	Economy.com; Calcuations by CERC	13-Jun
Economic Base Industry (4 NAICS)	Government	Transportation Equipment Mfg	Chemical Mfg	2003	Economy.com; Calcuations by CERC	13-Jun
Economic Base Industry (5 NAICS)	Heavy & Civil Engineering Construction	Personal & Laundry Services	Other Information Services	2003	Economy.com; Calcuations by CERC	13-Jun

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source	CERC
Economic Base Industry (6 NAICS)	General Merchandise Stores	Support Activities for Transportation	Accommodation	2003	Economy.com; Calcuations by CERC	13-Jun
Economic Base Industry (7 NAICS)	Accommodation	Utilities	Utilities	2003	Economy.com; Calcuations by CERC	13-Jun
Economic Base Industry (8 NAICS)	Food Services & Drinking Places	Repair & Maintenance	Food Services & Drinking Places	2003	Economy.com; Calcuations by CERC	13-Jun
Economic Base Industry (9 NAICS)	Personal & Laundry Services	Specialty Trade Contractors	Water Transportation	2003	Economy.com; Calcuations by CERC	13-Jun
Economic Base Industry (10 NAICS)	Utilities	Real Estate	Waste Management & Remediation Services	2003	Economy.com; Calcuations by CERC	13-Jun
Major Employer (1)	Kings Bay Naval Subase (8,940)	U.S. Federal Government (50,000)	Foxwoods (11,000)	2004	http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership; http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm; http://www.secter.org/pdfs/EconomyandLaborForce.pdf	13-Jun
Major Employer (2)	Camden County Schools (1,700)	Northrop Grumman Newport News (18,000)	U.S. Naval Subase (10,500)	2004	http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership; http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm; http://www.secter.org/pdfs/EconomyandLaborForce.pdf	13-Jun
Major Employer (3)	VT Griffin Services (700)	Sentara Healthcare (14,000)	Mohegan Sun (10,500)	2004	http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership; http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm; http://www.secter.org/pdfs/EconomyandLaborForce.pdf	13-Jun
Major Employer (4)	Express Scripts (650)	Riverside Health System (6,800)	General Dynamics/Electric Boat (8,800)	2004	http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership; http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm; http://www.secter.org/pdfs/EconomyandLaborForce.pdf	13-Jun
Major Employer (5)	Lockheed Missiles (430)	College of William & Mary (4,693)	Pfizer (6,000)	2004	http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership; http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm; http://www.secter.org/pdfs/EconomyandLaborForce.pdf	13-Jun
Major Employer (6)	Wal-Mart (425)	Naval Medical Center Portsmouth (4,028)	Lawrence & Memorial Hospital (2,200)	2004	http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership; http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm; http://www.secter.org/pdfs/EconomyandLaborForce.pdf	13-Jun
Major Employer (7)	Camden County Government (350)	Colonial Williamsburg (3,500)	MilestoneStation/Dominion Inc. (1,880)	2004	http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership; http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm; http://www.secter.org/pdfs/EconomyandLaborForce.pdf	13-Jun
Major Employer (8)	Camden Medical Center (260)	Smithfield Packing Company, Inc. (3,113)	W. Wm. Backus Hospital (1,600)	2004	http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership; http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm; http://www.secter.org/pdfs/EconomyandLaborForce.pdf	13-Jun
Major Employer (9)		Bank of America (3,000)	U.S. Coast Guard Academy (900)	2004	http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership; http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm; http://www.secter.org/pdfs/EconomyandLaborForce.pdf	13-Jun
Major Employer (10)		Old Dominion University (2,954)	Connecticut College (645)	2004	http://www.camdenchamber.com/the-chamber/member-profile.cfm?id=345&searchtext=The%20Camden%20Partnership; http://www.taubman.com/Shopcen/Centers/MacArthur/markets.htm; http://www.secter.org/pdfs/EconomyandLaborForce.pdf	13-Jun
Business Map	Included in powerpoint	Included in powerpoint	Included in powerpoint	2000	ESRI Business Analyst	13-Jun
Industry Targeting: Current Strength (1) - ordered by NAICS	Utilities	Utilities	Utilities	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (2) - ordered by NAICS	Food Svcs & Drinking Places	Food Svcs & Drinking Places	Food Svcs & Drinking Places	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (3) - ordered by NAICS	Personal & Laundry Svcs	Administrative & Support Svcs	Personal & Laundry Svcs	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (4) - ordered by NAICS	Accommodation	Repair & Maintenance	Accommodation	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (5) - ordered by NAICS	Transportation Equipment Mfg	General Merchandise Stores	Amusement, Gambling, & Recreation Industries	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (6) - ordered by NAICS	Administrative & Support Svcs	Motor Vehicle & Parts Dealers	Waste Management & Remediation Svcs	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (7) - ordered by NAICS	Repair & Maintenance	Specialty Trade Contractors	Museums, Historical Sites, & Similar Institutions	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (8) - ordered by NAICS	Gasoline Stations	Credit Intermediation & Related Activities	Nursing & Residential Care Facilities	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (9) - ordered by NAICS	General Merchandise Stores	Waste Management & Remediation Svcs	Chemical Mfg	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (10) - ordered by NAICS	Government	Rental & Leasing Svcs	Other Information Svcs	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (11) - ordered by NAICS	Heavy & Civil Engineering Construction	Performing Arts, Spectator Sports, & Related Industries	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (12) - ordered by NAICS	-	Pipeline Transportation	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (13) - ordered by NAICS	-	Motion Picture & Sound Recording Industries	-	2003	Economy.com; Calcuations by CERC	13-Jun

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source	CERC
Industry Targeting: Current Strength (14) - ordered by NAICS	-	Management of Companies & Enterprises	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Current Strength (15) - ordered by NAICS	-	Support Activities for Transportation	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Retention Target (1) - ordered by NAICS	-	Personal & Laundry Svcs	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Retention Target (2) - ordered by NAICS	-	Government	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Retention Target (3) - ordered by NAICS	-	Amusement, Gambling, & Recreation Industries	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Retention Target (4) - ordered by NAICS	-	Museums, Historical Sites, & Similar Institutions	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Retention Target (5) - ordered by NAICS	-	Nonstore Retailers	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Retention Target (6) - ordered by NAICS	-	Real Estate	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (1) - ordered by NAICS	Motor Vehicle & Parts Dealers	Building Material & Garden Equipment & Supplies Dealers	Administrative & Support Svcs	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (2) - ordered by NAICS	Specialty Trade Contractors	Social Assistance	Repair & Maintenance	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (3) - ordered by NAICS	Credit Intermediation & Related Activities	Educational Svcs	Gasoline Stations	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (4) - ordered by NAICS	Amusement, Gambling, & Recreation Industries	Religious, Grantmaking, Civic, Professional & Similar Orgs	Building Material & Garden Equipment & Supplies Dealers	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (5) - ordered by NAICS	Building Material & Garden Equipment & Supplies Dealers	Internet Svc Providers, Web Search Portals & Data Processing Svcs	Social Assistance	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (6) - ordered by NAICS	Social Assistance	Professional, Scientific, & Technical Svcs	Ambulatory Health Care Svcs	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (7) - ordered by NAICS	Ambulatory Health Care Svcs	Wholesale Electronic Markets & Agents & Brokers	Food & Beverage Stores	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (8) - ordered by NAICS	Food & Beverage Stores	Paper Mfg	Rental & Leasing Svcs	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (9) - ordered by NAICS	Plastics & Rubber Products Mfg	Merchant Wholesalers, Durable Goods	Educational Svcs	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (10) - ordered by NAICS	Insurance Carriers & Related Activities	Textile Mills	Religious, Grantmaking, Civic, Professional & Similar Orgs	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (11) - ordered by NAICS	-	Printing & Related Support Activities	Securities, Commodity Contracts, & Other Financial Investments	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (12) - ordered by NAICS	-	Fabricated Metal Product Mfg	Hospitals	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (13) - ordered by NAICS	-	Machinery Mfg	Couriers & Messengers	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (14) - ordered by NAICS	-	Computer & Electronic Product Mfg	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (15) - ordered by NAICS	-	Publishing Industries (except Internet)	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (16) - ordered by NAICS	-	Broadcasting (except Internet)	-	2003	Economy.com; Calcuations by CERC	13-Jun
Industry Targeting: Emerging Strength (17) - ordered by NAICS	-	Telecommunications	-	2003	Economy.com; Calcuations by CERC	13-Jun

Income
Lead

CERC Alissa DeJonge 860-571-6206 adejonge@cerc.com

DATA

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source	CERC
Personal Income amount & growth	1,017,306	45,773,195	9,202,716	2002	US BEA, REIS	13-Jun
Per capita Income	20,049	23,966	33,648	2004	CERC DataFinder	13-Jun
Median Household Income	44,274	46,191	54,586	2004	CERC DataFinder	13-Jun
Components of Personal Income: Net earnings	767,208	33,109,208	6,432,208	2002	US BEA, REIS	13-Jun
Components of Personal Income: Personal current transfer receipts	127,445	5,629,986	1,200,511	2002	US BEA, REIS	13-Jun
Components of Personal Income: Dividends, interest, and rent	122,653	7,034,003	1,569,997	2002	US BEA, REIS	13-Jun
Area's Share of State Total Personal Income	0.1%	19.2%	6.3%	2002	US BEA, REIS	13-Jun

Housing
Lead DECD Kolie Sun 860-270-8167 kolie.sun@po.state.ct.us

DATA

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source	DECD	CERC
Housing Inventory/Total Units	16,958	619,335	110,674	2000	U.S. Census, DP-1	13-Jun	
Housing Type: Occupied	14,705	577,659	99,835	2000	U.S. Census, DP-1	13-Jun	
Housing Type: Owner-occupied	9,305	363,829	66,562	2000	U.S. Census, DP-1	13-Jun	
Housing Type: Renter-occupied	5,400	213,830	33,273	2000	U.S. Census, DP-1	13-Jun	
Housing Type: Vacant	2,253	41,676	10,839	2000	U.S. Census, DP-1	13-Jun	
Housing Type: Seasonal/Vacation	516	8,788	5,236	2000	U.S. Census, DP-1	13-Jun	
Homeownership Rate	55%	59%	60%	2000	U.S. Census, DP-1	13-Jun	
Owner vacancy (%)	2.5	1.8	1.3	2000	U.S. Census, DP-1	13-Jun	
Rental vacancy (%)	12.5	5.6	6.4	2000	U.S. Census, DP-1	13-Jun	
houses blt. before 1959	1,690	157,218	51,015	2000	U.S. Census, DP-1	13-Jun	
Lacking indoor plumbing	91	2,510	360	2000	U.S. Census, DP-1	13-Jun	
Ave. household size	2.82	2.52	2.42	2004	CERC DataFinder		14-Jun
Ave. family size	3.22	3.08	3.00	2000	U.S. Census, DP-1	13-Jun	
Median home value	85,300	110,100	142,200	2000	U.S. Census, DP-1	13-Jun	
Median rent	551	615	646	2000	U.S. Census, DP-1	13-Jun	
new permit activity			1,424	2004	CT DECD	13-Jun	
Housing Affordability (price/med inc)	1.84		2.29	2000	U.S. Census		14-Jun
Housing Inventory/Total Units	10,885	537,101	104,461	1990	U.S. Census, DP-1	13-Jun	
Housing Type: Occupied	9,459	493,536	93,245	1990	U.S. Census, DP-1	13-Jun	
Housing Type: Owner-occupied	5,961	290,703	60,315	1990	U.S. Census, DP-1	13-Jun	
Housing Type: Renter-occupied	3,498	202,833	32,930	1990	U.S. Census, DP-1	13-Jun	
Housing Type: Vacant	1,426	43,565	11,216	1990	U.S. Census, DP-1	13-Jun	
Housing Type: Seasonal/Vacation	326	3,197	4,761	1990	U.S. Census, DP-1	13-Jun	
Owner vacancy (%)	3.8	3.3	2.2	1990	U.S. Census, DP-1	13-Jun	
Rental vacancy (%)	10.5	9.3	8.4	1990	U.S. Census, DP-1	13-Jun	
houses blt. before 1959	N/A	164,394	53,131	1990	U.S. Census, DP-1	13-Jun	
Lacking indoor plumbing	N/A	2,976	539	1990	U.S. Census, DP-1	13-Jun	
Ave. household size	2.89	2.69	2.59	1990	U.S. Census, DP-1	13-Jun	
Ave. family size	3.28	N/A	N/A	1990	U.S. Census, DP-1	13-Jun	
Median home value	66,700	87,000	149,200	1990	U.S. Census, DP-1	13-Jun	
Median rent	352	398	493	1990	U.S. Census, DP-1	13-Jun	
new permit activity			765	1990	CT DECD	13-Jun	

Comparison of new housing permit data by 3 sites

GA	KingsBay area*	Stat total	Ratio				
2000	396	91,820	0.43%	2000	U.S. Census	17-Jun	
2001	447	93,059	0.48%	2001	U.S. Census	17-Jun	
2002	456	97,523	0.47%	2002	U.S. Census	17-Jun	
2003	346	96,704	0.36%	2003	U.S. Census	17-Jun	
2004	426	108,356	0.39%	2004	U.S. Census	17-Jun	
VA	Norfolk MSA	Stat total	Ratio		U.S. Census	17-Jun	
2000	7,429	48,402	15.35%	2000	U.S. Census	17-Jun	
2001	8,716	52,880	16.49%	2001	U.S. Census	17-Jun	
2002	10,159	59,445	17.09%	2002	U.S. Census	17-Jun	
2003	10,353	55,936	18.51%	2003	U.S. Census	17-Jun	
2004	10,186	63,220	16.11%	2004	U.S. Census	17-Jun	
CT	New London Cnty	Stat total	Ratio		U.S. Census	17-Jun	
2000	1,918	9,376	20.46%	2000	U.S. Census	17-Jun	
2001	782	9,290	8.42%	2001	U.S. Census	17-Jun	
2002	956	9,731	9.82%	2002	U.S. Census	17-Jun	
2003	1,222	10,435	11.71%	2003	U.S. Census	17-Jun	
2004	1,424	11,837	12.03%	2004	U.S. Census	17-Jun	

*: Note:
Camden County, GA permit data is not available
Only Kingsland and St. Marys permit data available

Education k-16+

Lead	DOE	Mark Stapleton	860-713-6520	mark.stapleton@po.state.ct.us
	DOE	Marybeth Aleskwiz	860-713-6511	marybeth.aleskwiz@po.state.ct.us

DATA

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source
Dropout rates (7-12)	4.7%	1.8%	2.8%	2001-02	National Center for Education Statistics http://nces.ed.gov/ccd/bat
AP: # of students taking the test	69	19,794*	1,150	2003-04	Georgia BOE website, Connecticut State Department of Education, http://apcentral.collegeboard.com/article/0,3045,149-0-0-41919,00.html
AP: % of test 3 or higher	55.1%	62.8%*	63.6%	2003-04	Georgia BOE website, Connecticut State Department of Education, http://apcentral.collegeboard.com/article/0,3045,149-0-0-41919,00.html
SAT (average combined score)	944	1024*	1024	2003-04	Georgia BOE website, Connecticut State Department of Education, http://apcentral.collegeboard.com/article/0,3045,149-0-0-41919,00.html
educ expenditures	$61,823,000	$2,152,892,000	$503,899,000	2001-02	National Center for Education Statistics http://nces.ed.gov/ccd/bat
per pupil expend	$5,960	$7,009	$9,626	2001-02	National Center for Education Statistics http://nces.ed.gov/ccd/bat
student/teacher ratio	18.3/1	13.8/1	13.1/1	2001-02	National Center for Education Statistics http://nces.ed.gov/ccd/bat
school plants	12	401	123	2001-02	National Center for Education Statistics http://nces.ed.gov/ccd/bat
school capacity	N/A	N/A	49,311	2003	Connecticut State Department of Education
classroom size - Elementary†	19.8	19.1	19.9	1999-2000	National Center for Education Statistics http://nces.ed.gov
Secondary†	24.4	21.9	20.4	1999-2000	National Center for Education Statistics http://nces.ed.gov
enrollment	9,417	276,198	43,109	2003-04/2004-05	Georgia BOE website, Connecticut State Department of Education, www.schoolmatters.com
enrollment projections (5-year proj.)	N/A	N/A	41,363	2005	Connecticut State Department of Education
teacher qualifications (% highly qualified)†	97%	94.5%	98.8%	2003-04	Georgia BOE website, Connecticut State Department of Education, Virginia BOE website
post sec institutions	Coastal Georgia Community College; Valdosta State University and Brenau College have degree programs at the Kings Bay Navy Campus	The Norfolk metro area has 34 private and public institutions of higher education, including community colleges, associate programs, and four-year degree programs. See attached excel file.	Connecticut College Lyme Academy College of Fine Arts University of Connecticut at Avery Point Three Rivers Community College U. S. Coast Guard Academy		http://www.camdenchamber.com/the-chamber/member-profile.cfm?Id=345&searchtext=The%20Camden%20Partnership (Section I) & http://www.csde.state.ct.us/public/csde/reports/reportsection.asp
post sec attendance					

	GA	VA	CT		
NAEP Score: Math, Grade 4	27	36	41		NCES
NAEP Score: Reading, Grade 4	27	35	43		NCES
NAEP Score: Writing, Grade 4	23	29	49		NCES
NAEP Score: Math, Grade 8	22	31	35		NCES
NAEP Score: Reading, Grade 8	26	36	37		NCES
NAEP Score: Writing, Grade 8	25	32	45		NCES

Additional Education Notes:

1. Groton has 5,572 students in grades PreK-12 and 1,453 (26%) are dependents of active duty military members.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
2. An additional 540 (10%) students have parents that work on federal property.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
3. 189 special needs students are military dependents.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
4. 4 military dependent special need students are placed outside of the Groton Public School System. The district has a total of 843 Special needs students.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
5. 11 students attend Regional Multicultural Magnet School in New London. 5 students attend Vocational Agricultural School in Ledyard.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
6. PreK is available in 6 of 9 elementary schools. Each of the 3 elementary schools serving 75% or more of our military dependent students has a PreK program.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
7. All elementary schools have half-day and full-day kindergarten classes available.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
8. All schools in Groton have active duty military parents.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Charles Barnum Elem. 324 students 90%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Mary Morrison Elem. 302 75%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Fitch Middle School 268 59%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Fitch High School 224 15%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Pleasant Valley Elem. 195 76%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Groton Heights Elem. 12 9%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Claude Chester Elem. 18 5%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Colonel Ledyard Elem. 8 5%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Eastern Point Elem. 20 5%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Noank Elem. 18 5%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
S.B Butler 16 4%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
Cutler Middle School 19 4%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
West Side Middle 9 3%	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
9. There has been a longstanding relationship between the Sub Base and the Groton Public School system. The Military Superintendent's Liaison Committee (MSLC) was formed in 1995 and continues to meet monthly. The MSLC through monthly meetings address quality of life issues which enhances cross communication on academic and military topics.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
10. The Town of Groton annually receives, for Town use, approximately $6 to $7 millions from Federal Impact Aid for students on federal property.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
During the 2003-2004 school year, military personnel and family members volunteered in the schools accounted for 31,360 hours. The five leading military schools documented over 13,400 hours or 43% of the district total.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT
There is not a large amount of students with families connected to the sub base, maybe 50 parents with ties to the Navy. There is a large ancillary dependency on the sub base, ie. Many employers, as well as private businesses, in the area affected.	Dr. Christopher Clouet, Superintendent of Schools, New London, CT

What is the Ledyard Public School student enrollment in grades PreK-12, and how many students are	Based on October 1, 2004 Federal Survey
Ledyard has 3000 students in grades PreK-12 and 370 (12%) are dependents of active duty Naval military	Based on October 1, 2004 Federal Survey
How many additional Ledyard students have civilian parents who work on federal property in the area?	Based on October 1, 2004 Federal Survey
An additional 114 (3%) students have parents that work on federal property.	Based on October 1, 2004 Federal Survey
How many Ledyard special needs students are military dependents?	Based on October 1, 2004 Federal Survey
We have 33 students.	Based on October 1, 2004 Federal Survey
How many Ledyard military dependent special need students are placed outside of the Ledyard Public	Based on October 1, 2004 Federal Survey
We have 0 students.	Based on October 1, 2004 Federal Survey

How many Ledyard military dependent students attend area school settings?	Based on October 1, 2004 Federal Survey
Regional Multicultural Magnet School in New London – 2 students	Based on October 1, 2004 Federal Survey
Is PreK available in Ledyard elementary schools?	Based on October 1, 2004 Federal Survey
A district-wide Pre-K program is housed in Gallup Hill School. This program services identified special	Based on October 1, 2004 Federal Survey
Are half-day and full-day Kindergarten classes available in Ledyard Elementary Schools?	Based on October 1, 2004 Federal Survey
Three elementary schools have half-day kindergarten classes available. There are no full-day Kindergarten	Based on October 1, 2004 Federal Survey
Do all schools in Ledyard have students with active duty military parents? How many students by school	Based on October 1, 2004 Federal Survey
Yes, all schools in Ledyard have active duty military parents. The 370 Navy military dependent children are	Based on October 1, 2004 Federal Survey
Has there been a longstanding relationship between the Sub Base and the Ledyard Public School	Based on October 1, 2004 Federal Survey
Yes, in 1995 the Military Superintendent's Liaison Committee (MSLC) was formed and continues to meet	Based on October 1, 2004 Federal Survey
Does the Town of Ledyard receive Federal Impact Aid for students on federal property?	Based on October 1, 2004 Federal Survey
Yes, the Town of Ledyard receives approximately $300,000 per year of federal impact aid for military dependent	Based on October 1, 2004 Federal Survey
Do military personnel and family members volunteer in the schools?	Based on October 1, 2004 Federal Survey
Yes. Ledyard Public School enjoys extensive volunteer support from the military community. Most recently, a	Based on October 1, 2004 Federal Survey

Groton				Source: SCCOG
As of 10/1/04 there were 1,453 active military dependent students enrolled.				Source: SCCOG
Pre K - Gr. 5	913			Source: SCCOG
Gr. 6 - 8	296			Source: SCCOG
Gr. 9 - 12	224			Source: SCCOG
Out of district placements	4			Source: SCCOG
Regional Magnet School	11			Source: SCCOG
Ledyard Vo-Ag School	5			Source: SCCOG
TOTAL	1,453			Source: SCCOG
				Source: SCCOG
				Source: SCCOG
[illegible]ard				Source: SCCOG
[illegible]ts a total of 407 (I will assume for same period)				Source: SCCOG
[illegible] - Gr. 5	261			Source: SCCOG
Gr. 6 - 8	68			Source: SCCOG
Gr. 9 -12	78			Source: SCCOG
TOTAL	407			Source: SCCOG

Between Groton and Ledyard, there are 1,860 military dependent students. Camden County schools had total 9,569 enrollments, according to GA DOE. If Groton subbase were closed, that means 1,860 students will attend Camden county schools which translates a 19.4% increase of school enrollments in that region.

Groton Public Schools http://www.groton.k12.ct.us/Marie/award.pdf
Press Release
13-Jun-05

The Groton Public Schools and the New London U. S. Naval Submarine Base are proud to announce that we are the recipients of the Military Child Education Coalition 2005 LTG (Ret.) Pete Taylor Partnership of Excellence Award for demonstrating our ongoing commitment to working together for the future of our children. This award recognizes our joint efforts to further our goal of achieving academic success and well-being for every child in Groton.

A representative from the Groton Public Schools and the U. S. Naval Submarine Base will receive the Partnership of Excellence Award at the 2005 National Military Child Educational Coalition Conference to be held June 29 – July 1, 2005 in Atlanta, GA.

This award was established in 2004 by the Board of Directors of the Military Child Education Coalition (MCEC), a national organization formed in 1998. The aim of this award was to "encourage and promote the outstanding partnerships that exist between military installations and school districts."

Quality of life issues for military personnel and their families have always been a focus for the Groton community. In 1995, The Military Superintendents' Liaison Committee (MSLC) was formed and a formal bond was established between the Navy Base and the Groton Public Schools to enhance cross communication on current academic and military issues. The committee consists of area superintendents, school and military personnel who meet regularly to address issues affecting the military dependent child and family. The initial task was standardization of physical examination requirements for students who transfer in and around southeastern Connecticut. This successful endeavor led the MCLC to organize the first regional conference to bring military and school personnel together. This conference took place in Connecticut in 1996 and quickly grew into a national movement, with an international conference taking place in Virginia in 1998. Both conferences were tremendously successful in identifying, addressing, and bringing national attention to the issues facing the military child and family.

The forming of MCEC in 1998 brought these efforts to the next level. MCEC was chartered with the goal of addressing quality of life issues for military families. The U.S. Naval Submarine Base and the Groton Public School System are members of MCEC. In July 2003, the fifth annual MCEC conference was held at the Mystic Marriott in Groton. Representatives from the MSLC were involved with the planning and facilitating of the 2002 and 2003 annual MCEC conferences. Members of our MSLC have also presented at the last four MCEC conferences and will also present at the 2005 conference.

The following are some examples of local efforts which led to our receiving this award: Navy 101, a seminar for new teachers orienting them to the issues of military life and transitions affection school age children; the Annual Volunteer Breakfast honoring military personnel who serve in local schools; the development of partnerships between schools and military personnel; and the inclusion of educational information in the Navy's Welcome Aboard packet.

Strong ties exist between the Groton Public Schools and the military community. Partnerships and bonds have been developed for the benefit of the children and will continue to expand into the future.

For additional information feel free to contact Mrs. Sally Keating at skeating@groton.k12.ct.us or visit the webpage of the Military Child Educational Coalition at www.militarychild.org/Award.asp.

Possible Capacity Issue:

Grade	Current Enrollment: Camden Co, GA	Potential New Enrollment	% Increase			DECD
K-5	4,636	587	12.7	FY 2005	Groton Board of Education; Ledyard Board of Education; GA Dept. of Education	17-Jun
6-8	2,279	182	8.0	FY 2005	Groton Board of Education; Ledyard Board of Education; GA Dept. of Education	17-Jun
9-12	2,654	151	5.7	FY 2005	Groton Board of Education; Ledyard Board of Education; GA Dept. of Education	17-Jun
Total	9,569	920	9.6	FY 2005	Groton Board of Education; Ledyard Board of Education; GA Dept. of Education	17-Jun

Fiscal

Lead - Fiscal	OPM	Phil Smith	860-418-6298	philip.smith@po.state.ct.us
Lead - Tax	DRS	Mike Galliher	860-297-5691	mike.galliher@po.state.ct.us
Lead - Fiscal	OPM	Anne Gnazzo	860-418-6458	anne.gnazzo@po.state.ct.us

DATA

	GA	VA	CT	Year	Data Source	OPM	DRS
public sector budget/capita	$ 3,749	$ 3,955	$ 5,942	2003	2003, CT Total expenditure; U.S. Census Bureau, Governments Division	14-Jun	
public sector revenue/capita	$ 3,034	$ 3,466	$ 4,651	2003	2003, CT General Revenue; U.S. Census Bureau, Governments Division	14-Jun	
taxing capacity	0.96	1.13	1.39	2002	2002, US=1.00; The National Center for High Education Management Systems Information Center	14-Jun	
public sector employment	632.5 (16.4%)	638.6 (18.2%)	246.4 (15.0%)	2003	2003, in 1000s, (Fed & local govt employments as a % of total); Bureau of Labor Statistics	14-Jun	
taxes/capita	$ 1,546	$ 1,761	$ 2,727	2003	2003; U.S. Census Bureau, Governments Division	14-Jun	
taxes/ per $100 personal income	$ 5.43	$ 5.34	$ 6.43	2003	2003; U.S. Census Bureau & Bureau of Economic Analysis	14-Jun	
public debt/capita	$ 1,025	$ 1,837	$ 6,450	2003	2003, state debt only; U.S. Census Bureau, Governments Division	14-Jun	
bond rating	Aaa	Aaa	Aa3	2005	State G.O., May 2005; Moody's Investors Services	14-Jun	
educ expenditures (In $M)	$ 11,707	$ 6,168	$ 4,979	2003	Actual 2003, including higher, elementary & secondary educ (State only); National Governors Association of State Budget Officers	14-Jun	
educ expenditures/Per capita	$ 1,349	$ 1,109	$ 1,428	2003	Actual 2003 (State Only); U.S. Census Of Bureau & NASBO	14-Jun	
return on federal tax dollar	$ 0.98	$ 1.53	$ 0.72	2003	2003; U.S. Department of Commerce, Bureau of the Census	15-Jun	
Fair Market Value (FMV) 2002	$524,235,412,805	$553,106,529,816	$443,865,522,265	2002	State of CT Office of Policy and Mgmt; VA Dept of Taxation; GA Dept of Revenue	16-Jun	
Fair Market Value (FMV) 2003	$569,158,930,957	$612,367,302,357	$487,306,910,469	2003	State of CT Office of Policy and Mgmt; VA Dept of Taxation; GA Dept of Revenue	16-Jun	
DIFFERENCE	$44,923,518,152	$59,260,772,541	$43,441,388,204	2002-2003	State of CT Office of Policy and Mgmt; VA Dept of Taxation; GA Dept of Revenue	16-Jun	
% CHANGE	8.6%	10.7%	9.8%	2002-2003	State of CT Office of Policy and Mgmt; VA Dept of Taxation; GA Dept of Revenue	16-Jun	
POPULATION	8,676,460	7,365,284	3,486,960	2003	State of CT Office of Policy and Mgmt; VA Dept of Taxation; GA Dept of Revenue	16-Jun	
FMV PER CAPITA	65,598	83,142	139,751	2003	State of CT Office of Policy and Mgmt; VA Dept of Taxation; GA Dept of Revenue	16-Jun	

NOTE: Connecticut assesses at 70% of fair market value; Georgia assesses at 40% of fair market value; and Virginia assesses at 100% of fair market value;

	Camden County, GA	Norfolk, VA MSA	New London County, CT		Data Source		
Personal Income Tax State	yes	yes	yes		Georgia Dept. of Revenue		17-Jun
Personal Income Tax County or City	none	none	none		Virginia Dept. of Taxation		17-Jun
Real Property Tax State	yes, limited tax	none	none		Georgia Dept. of Revenue		17-Jun
Real Property Tax County	including school taxes, additional to state, city taxes	yes	none		Georgia Dept. of Revenue		17-Jun
Real Property Tax Municipal	additional to state, county tax	yes	yes				17-Jun
Personal Property Tax State	yes, limited tax	none	none		Virginia Dept. of Taxation		17-Jun
Personal Property Tax County	yes	yes	none		Georgia Dept. of Revenue		17-Jun
Personal Property Tax Municipal	additional to county tax	yes	yes		Virginia Dept. of Taxation		17-Jun
Sales Tax State	yes	yes	yes		Virginia Dept. of Taxation		17-Jun
Sales Tax County or Local	yes, county	yes, local	none		Georgia Dept. of Revenue		17-Jun
Corporation Tax State	yes	yes	yes		Georgia Dept. of Revenue		17-Jun
Corporation Tax County or Municipal	none	none	none				17-Jun
Personal Income Tax Top State Rate	6%	5.75%	5%		Georgia Dept. of Revenue		17-Jun
Real Property Tax State	.250 mills, based on 40% fmv	none	none		Georgia Dept. of Revenue		17-Jun
Real Property Tax County	27.078 mills, based on 40% fmv	yes	none		Georgia Dept. of Revenue		17-Jun

r Force

DOL Mark Stankiewicz 860-263-6256 mark.stankiewicz@po.state.ct.us

DATA

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source	DOL
LMA map	included in powerpoint	included in powerpoint	included in powerpoint	2005		17-Jun
labor force size	16,962	815,105	147,383	2004	STATS Indiana, U.S. BLS	15-Jun
labor force growth rate	1.87%	8.99%	6.35%	2000-2004	U.S. DOL	21-Jun
participation rates (emp/pop ratio)	37.9	49.3	54.5	2004	STATS Indiana, U.S. BLS	15-Jun
mean age (years)	29.9	36.8	37.2		U.S. Census	15-Jun
% Population < 15 Years	26.9	23.5	20.5		U.S. Census	15-Jun
% Population 16-24 Years	17.7	14.1	12.5		U.S. Census	15-Jun
% Population 25-44 Years	33.9	31.7	31.2		U.S. Census	15-Jun
% Population 45-64 Years	16.3	20.4	22.8		U.S. Census	15-Jun
% Population 65+ Years	5.2	10.3	13		U.S. Census	15-Jun
unemp rate	4.70%	3.40%	4.30%	2004	STATS Indiana, U.S. BLS	15-Jun
Total:	21,066	760,401	129,553	2000	U.S. Census 2000 SF3-Sample data (P26)	16-Jun
Worked in state of residence:	18,269	743,345	125,479	2000	U.S. Census 2000 SF3-Sample data (P26)	16-Jun
Worked in county of residence	16,357	391,053	107,232	2000	U.S. Census 2000 SF3-Sample data (P26)	16-Jun
Worked outside county of residence	1,912	352,292	18,247	2000	U.S. Census 2000 SF3-Sample data (P26)	16-Jun
Worked outside state of residence	2,797	17,056	4,074	2000	U.S. Census 2000 SF3-Sample data (P26)	16-Jun
Total:	21,066	760,401	129,553	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Living in an MSA/PMSA:	0	760,401	127,255	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Living in a central city:	0	559,408	29,684	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Worked in MSA/PMSA of residence:	0	543,021	26,691	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Central city	0	484,838	13,062	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Remainder of this MSA/PMSA	0	58,183	13,629	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Worked outside MSA/PMSA of residence:	0	16,387	2,993	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Worked in a different MSA/PMSA:	0	9,040	2,534	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Central city	0	3,954	698	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Remainder of different MSA/PMSA	0	5,086	1,836	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Worked outside any MSA/PMSA	0	7,347	459	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
ving in remainder of an MSA/PMSA:	0	200,993	97,571	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
orked in MSA/PMSA of residence:	0	189,463	83,513	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Central city	0	93,751	16,770	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Remainder of this MSA/PMSA	0	95,712	66,743	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Worked outside MSA/PMSA of residence:	0	11,530	14,058	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Worked in a different MSA/PMSA:	0	4,855	11,340	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Central city	0	2,014	3,536	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Remainder of different MSA/PMSA	0	2,841	7,804	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Worked outside any MSA/PMSA	0	6,675	2,718	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Not living in an MSA/PMSA:	21,066	0	2,298	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Worked in an MSA/PMSA:	2,743	0	1,800	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Central city	1,673	0	514	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Remainder of MSA/PMSA	1,070	0	1,286	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Worked outside any MSA/PMSA	18,323	0	498	2000	U.S. Census 2000 SF3-Sample data (P28)	16-Jun
Total:	21,066	760,401	129,553	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
Did not work at home:	20,765	740,059	126,146	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
Less than 5 minutes	761	18,120	4,701	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
5 to 9 minutes	3,004	66,569	16,448	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
10 to 14 minutes	4,140	107,563	21,311	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
15 to 19 minutes	3,892	133,658	22,769	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
20 to 24 minutes	2,446	132,182	20,138	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
25 to 29 minutes	744	52,004	7,888	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
30 to 34 minutes	2,115	110,515	13,536	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
35 to 39 minutes	466	19,276	3,233	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
40 to 44 minutes	484	20,590	3,271	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
45 to 59 minutes	1,800	43,381	5,862	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
60 to 89 minutes	646	21,187	4,713	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
90 or more minutes	267	15,014	2,276	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun
Worked at home	301	20,342	3,407	2000	U.S. Census 2000 SF3-Sample data (P31)	16-Jun

Notes: Camden county GA shows most work outside a central economic area.

	Camden County, GA	Norfolk City, VA	New London County, CT			
ers (16+ Years)	18,063	213,956	131,315	1990	U.S. Census	16-Jun
(16+ Years)	19,930	185,265	135,185	2000	U.S. Census	16-Jun
W (16+ Years), Abs Change	1,867	-28,691	3,870	1990-2000	U.S. Census	16-Jun

[illegible]s (16+ Years), % Change	10.3%	-13.4%	2.9%	1990-2000	U.S. Census	16-Jun
[illegible]mute time (median)	18.4	24.4	19.2	1990	U.S. Census	16-Jun
av[illegible]mute time (median)	15.5	20.7	20.0	2000	U.S. Census	16-Jun
avg commute time (mean)	21.1	25.1	19.9	1990	U.S. Census	16-Jun
avg commute time (mean)	21.7	26.0	22.7	2000	U.S. Census	16-Jun

**Also, see attached files from DOL for city/large MSA data.

Notes: Camden County, Ga is not part of an officially US OMB defined metropolitan or micropolitan statistical area according to criteria applied to Census Bureau data. 15 to 22 minutes commuting times will not get you to Jacksonville, FL. (which is considered the largest metro area in relation to Camden County).

Notes: The New London Naval Sub Base in Groton, CT and the Norfolk Naval Base in Norfolk, VA are located in OMB defined statistical areas that consists of a core area containing a substantial population nucleus, and having adjacent communities that have a high degree of economic and social integration with that core area. Camden County, GA, where King's Bay Sub Base is located, does not meet this federally defined statistical designation based on 2000 Census data. The closest large MSA to King's Bay is The Jacksonville, FL MSA about 40 miles away.

Travel commutes seem longer in Southern MSA's.
And King's Bay would have to draw on the Jacksonville MSA to attract workers to supply Camden County GA labor force.

PAYROLL EMPLOYMENT	CAMDEN COUNTY	NORFOLK MSA	NEW LONDON COUNTY			
TOTAL INDUSTRY PAYROLL EMPLOYMENT						
Payroll Employment	13,511	706,387	128,487	2003	U.S. BLS, QCEW	16-Jun
Number of Establishments	834	35,090	6,529	2003	U.S. BLS, QCEW	16-Jun
Ave Annual Pay	28,817	32,218	39,680	2003	U.S. BLS, QCEW	16-Jun
MANUFACTURING (31-33)						
Payroll Employment	620	59,743	17,065	2003	U.S. BLS, QCEW	16-Jun
Number of Establishments	27	1,079	214	2003	U.S. BLS, QCEW	16-Jun
Ave Annual Pay	45,476	43,825	69,171	2003	U.S. BLS, QCEW	16-Jun
RETAIL (44-45)						
P[illegible]roll Employment	1,836	86,980	14,422	2003	U.S. BLS, QCEW	16-Jun
[illegible]r of Establishments	141	5,349	1,025	2003	U.S. BLS, QCEW	16-Jun
[illegible]ual Pay	19,271	20,199	23,943	2003	U.S. BLS, QCEW	16-Jun
TRANSPORT/WAREHOUSING (48-49)						
Payroll Employment	N	21,898	2,456	2003	U.S. BLS, QCEW	16-Jun
Number of Establishments	N	1,055	118	2003	U.S. BLS, QCEW	16-Jun
Ave Annual Pay	N	37,024	31,215	2003	U.S. BLS, QCEW	16-Jun
PROF-TECH-SCIENTIFIC (54)						
Payroll Employment	N	N	5,690	2003	U.S. BLS, QCEW	16-Jun
Number of Establishments	N	N	611	2003	U.S. BLS, QCEW	16-Jun
Ave Annual Pay	N	N	68,558	2003	U.S. BLS, QCEW	16-Jun
ADMIN & SUPPORT (56)						
Payroll Employment	836	N	3,258	2003	U.S. BLS, QCEW	16-Jun
Number of Establishments	47	N	321	2003	U.S. BLS, QCEW	16-Jun
Ave Annual Pay	30,582	N	31,099	2003	U.S. BLS, QCEW	16-Jun
EDUCATION (Local Public Schools-NAICS 6111, Ownership = 3)						
Payroll Employment	N	NA	6,795	2003	U.S. BLS, QCEW	16-Jun
Number of Establishments	N	NA	20	2003	U.S. BLS, QCEW	16-Jun
Ave Annual Pay	N	NA	40,059	2003	U.S. BLS, QCEW	16-Jun
HEALTH CARE (62, Private, Ownership = 5)						
Payroll Employment	778	64,140	13,938	2003	U.S. BLS, QCEW	16-Jun
Number of Establishments	77	2,723	621	2003	U.S. BLS, QCEW	16-Jun
Ave Annual Pay	29,925	33,619	36,707	2003	U.S. BLS, QCEW	16-Jun
ACCOM/FOOD SERV (72)						
Payroll Employment	2,068	65,652	10,506	2003	U.S. BLS, QCEW	16-Jun
Number of Establishments	94	3,041	605	2003	U.S. BLS, QCEW	16-Jun
Ave Annual Pay	11,487	12,123	15,286	2003	U.S. BLS, QCEW	16-Jun

PAYROLL EMPLOYMENT - RELATIVE CHARACTERISTICS	CAMDEN COUNTY	NORFOLK MSA	NEW LONDON COUNTY			
[illegible] INDUSTRY PAYROLL EMPLOYMENT						
H[illegible] of Payroll Employment	100.00	100.00	100.00	2003	U.S. BLS, QCEW	16-Jun

Percent of Establishments	100.00	100.00	100.00	2003	U.S. BLS, QCEW	16-Jun
Av Ann Pay Ratio (Sector/Total)	1.00	1.00	1.00	2003	U.S. BLS, QCEW	16-Jun
MANUFACTURING (31-33)						
Percent of Payroll Employment	4.59	8.46	13.28	2003	U.S. BLS, QCEW	16-Jun
Percent of Establishments	3.24	3.07	3.28	2003	U.S. BLS, QCEW	16-Jun
Av Ann Pay Ratio (Sector/Total)	1.58	1.36	1.74	2003	U.S. BLS, QCEW	16-Jun
RETAIL (44-45)						
Percent of Payroll Employment	13.59	12.31	11.22	2003	U.S. BLS, QCEW	16-Jun
Percent of Establishments	16.91	15.24	15.70	2003	U.S. BLS, QCEW	16-Jun
Av Ann Pay Ratio (Sector/Total)	0.67	0.63	0.60	2003	U.S. BLS, QCEW	16-Jun
TRANSPORT/WAREHOUSING (48-49)						
Percent of Payroll Employment	N	3.07	1.91	2003	U.S. BLS, QCEW	16-Jun
Percent of Establishments	N	3.01	1.81	2003	U.S. BLS, QCEW	16-Jun
Av Ann Pay Ratio (Sector/Total)	N	1.15	0.79	2003	U.S. BLS, QCEW	16-Jun
PROF-TECH-SCIENTIFIC (54)						
Percent of Payroll Employment	N	N	4.43	2003	U.S. BLS, QCEW	16-Jun
Percent of Establishments	N	N	9.36	2003	U.S. BLS, QCEW	16-Jun
Av Ann Pay Ratio (Sector/Total)	N	N	1.73	2003	U.S. BLS, QCEW	16-Jun
ADMIN & SUPPORT (56)						
Percent of Payroll Employment	6.19	N	2.54	2003	U.S. BLS, QCEW	16-Jun
Percent of Establishments	5.64	N	4.92	2003	U.S. BLS, QCEW	16-Jun
Av Ann Pay Ratio (Sector/Total)	1.06	N	0.78	2003	U.S. BLS, QCEW	16-Jun
EDUCATION (Local Public Schools-NAICS 6111, Ownership = 3)						
Percent of Payroll Employment	N	NA	5.29	2003	U.S. BLS, QCEW	16-Jun
Percent of Establishments	N	NA	0.31	2003	U.S. BLS, QCEW	16-Jun
Av Ann Pay Ratio (Sector/Total)	N	NA	1.01	2003	U.S. BLS, QCEW	16-Jun
HEALTH CARE (62, Private, Ownership = 5)						
Percent of Payroll Employment	5.76	9.08	10.85	2003	U.S. BLS, QCEW	16-Jun
Percent of Establishments	9.23	7.76	9.51	2003	U.S. BLS, QCEW	16-Jun
Av Ann Pay Ratio (Sector/Total)	1.04	1.04	0.93	2003	U.S. BLS, QCEW	16-Jun
ACCOM/FOOD SERV (72)						
Percent of Payroll Employment	15.31	9.29	8.18	2003	U.S. BLS, QCEW	16-Jun
Percent of Establishments	11.27	8.67	9.27	2003	U.S. BLS, QCEW	16-Jun
Av Ann Pay Ratio (Sector/Total)	0.40	0.38	0.39	2003	U.S. BLS, QCEW	16-Jun

Occupational Employment	Jacksonville, FL MSA	Norfolk, VA MSA	Large CT-RI MSA			
Total All Occupations	544,350	719,140	1,529,140	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Management occupations	19,710	25,020	74,850	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Business and financial operations occupations	26,450	32,200	71,790	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Computer and mathematical occupations	13,030	17,150	38,840	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Architecture and engineering occupations	8,340	20,730	32,650	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Life, physical, and social science occupations	3,140	5,210	16,000	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Community and social services occupations	5,540	8,880	31,150	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Legal occupations	4,880	4,270	11,570	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Education, training, and library occupations	26,020	45,620	109,990	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Arts, design, entertainment, sports, and media oc	4,830	7,400	18,120	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Healthcare practitioners and technical occupation	25,200	32,330	87,150	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Healthcare support occupations	11,200	16,160	46,860	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Protective service occupations	12,800	17,650	36,150	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Food preparation and serving related occupations	45,170	61,990	117,500	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Building and grounds cleaning and maintenance c	16,390	25,480	50,150	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Personal care and service occupations	11,250	16,210	41,520	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Sales and related occupations	64,750	83,960	150,700	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Office and administrative support occupations	115,340	121,800	273,570	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Farming, fishing, and forestry occupations	0	420	1,100	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Construction and extraction occupations	32,850	44,020	54,420	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Installation, maintenance, and repair occupations	21,860	33,460	51,850	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Production occupations	24,830	43,060	120,870	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun
Transportation and material moving occupations	46290	56,130	92,400	2004	CT, FL and VA's 2004 Occ Emp Surveys	17-Jun

lthcare

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DATA

	Camden County, GA, FIPS 13039	Norfolk City, VA, FIPS 51710	New London County, CT, FIPS 09011	Year	Data Source	Dept. of Health	CERC
doctors per 1,000 people	0.9	na	2.2	2000	health.state.ga.us/regional/camden/index.asp & DPH	16-Jun	
dentists per 1,000 people	0.17	na	0.37	1997	U.S. Census		21-Jun
hospital beds per 100,000 people	0.9	5*	2.1	2000	www.hospitalcompare.hhs.gov	16-Jun	
costs	na	na	na				
Mortality Rate per 100,000 people: all causes	870.6	1032.6	777.7	1999-2002	http://wonder.cdc.gov/mortICD10.html	16-Jun	
Mortality Rate per 100,000 people: malignant neoplasms	193.3	242.2	184.2	1999-2002	http://wonder.cdc.gov/mortICD10.html	16-Jun	
Mortality Rate per 100,000 people: ischemic heart disease	140.7	193.1	145.6	1999-2002	http://wonder.cdc.gov/mortICD10.html	16-Jun	
Mortality Rate per 100,000 people: cerebrovascular disease	48.8	74.1	57.2	1999-2002	http://wonder.cdc.gov/mortICD10.html	16-Jun	
Mortality Rate per 100,000 people: chronic lower respiratory disease	61.8	46.8	43.7	1999-2002	http://wonder.cdc.gov/mortICD10.html	16-Jun	
Mortality Rate per 100,000 people: pneumonia and influenza	22.2	22.5	19.9	1999-2002	http://wonder.cdc.gov/mortICD10.html	16-Jun	
Mortality Rate per 100,000 people: infant mortality	703.0	1115.8	718.1	1999-2002	http://wonder.cdc.gov/mortICD10.html	16-Jun	
births to teens ages 15-19, % of all births	13.6	15.8	7.5	1999-2002	http://wonder.cdc.gov/nata.html &	16-Jun	
low birth weight babies, % of all births	7.3	10.1	6.7	1999-2002	http://wonder.cdc.gov/nata.html & health.state.ga.us/programs/ohip/birthdeath.asp	16-Jun	
medicare indicators	na	na	na				
emergency response time	na	na	na				

*The hospital bed figures will naturally be biased toward higher figures for Norfolk City, relative to most county-level figures.

	GA	VA	CT				
medicare enrollees as % of population	11.2	12.7	10.7	2002	http://www.cms.hhs.gov/researchers/pubs/datacompendium/2003/03pg7475.pdf		21-Jun
medicaid eligibles as % of population	15.0	9.6	12.3	2000	http://www.cms.hhs.gov/researchers/pubs/datacompendium/2003/03pg78.pdf		21-Jun

*: CDC Wonder uses FIPS, not MSA for location. Rates are age-adjusted to 2000 US population standard.
gevity, see all cause mortality. For cancer rates, see malignant neoplasms.

Social/civic

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DATA

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source	State Library
Active voters	20,234			2005	http://www.sos.state.ga.us/elections/voter_registration/county.htm	17-Jun
Active voters		458,006		2003	http://www.sbe.state.va.us/VotRegServ/VVRS_Stats/Locality/2003/Voters.by.loc.distdec03.html (Norfolk City, Newport News, Portsmouth, VA Beach)	17-Jun
Inactive voters		43,536		2003	http://www.sbe.state.va.us/VotRegServ/VVRS_Stats/Locality/2003/Voters.by.loc.distdec03.html (Norfolk City, Newport News, Portsmouth, VA Beach)	17-Jun
Active voters			79,867	2004	Source: State Register and Manual, 2004. Secretary of the State.	17-Jun
Inactive voters			58,253	2004	Source: State Register and Manual, 2004. Secretary of the State.	17-Jun

	Groton, CT	New London, CT	Three Rivers Regional Library System, Camden County, GA	Norfolk Public Library, Norfolk, VA	Newport News Public Library System, Newport News, VA	Portsmouth Public Library, Portsmouth, VA	Virginia Beach Public Library, Virginia Beach, VA	Sources	
Date of Statistics	2002/2003	2002/2003	FY	2000	2000	2000	2000		
Print Collection	116,791	76,582	271,877	1,064,512	445,233	335,468	868,584	http://ct.webjunction.org/do/DisplayContent?id=6111	CT Libraries
Population	40,270	26,582	191,447	234,403	180,150	100,565	425,257	http://www.georgialibraries.org/lib/publiclib/FY2002AR.pdf	GA Libraries
Volumes Per Capita	2.9	2.88	1.42	4.72	2.47	3.45	2.06	http://www.lva.lib.va.us/whatwedo/ldnd/stats/holdings.pdf	VA Libraries
Total Circulation	367,490	159,794	563,587	758,111	696,296	329,263	2,760,473		
Circulation per Capita	9.1	6	2.94	3.36	3.87	3.39	6.56		

DMA Counties:	Camden County, GA	Norfolk City & Newport News City	New London County, CT			
TV Households	15,450	153,230	99,640	2005	Gale Directory of Publications and Broadcast Media, 139th edition; Broadcasting/Cable Yearbook, 2003-2004	17-Jun
Households	587,200	677,610	980,410	2005	Gale Directory of Publications and Broadcast Media, 139th edition; Broadcasting/Cable Yearbook, 2003-2004	17-Jun
Ratio	2.63%	22.61%	10.16%	2005	Gale Directory of Publications and Broadcast Media, 139th edition; Broadcasting/Cable Yearbook, 2003-2004	17-Jun

	Camden County, GA	Norfolk, VA	Newport News, VA	New London, CT	Norwich, CT	
Newspaper	Brunswick News	The Virginian-Pilot	The Daily Press	The Day	Norwich Bulletin	17-Jun
Circulation: Daily	16,284	199,335	92,434	40,745	27,569	17-Jun
Circulation:Saturday		219,000				17-Jun
Circulation: Sunday		235,267	115,985	45,587	31,659	17-Jun

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DATA

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Data Source	DEP
air quality	Facility has issued Title V permit, effective June 2002 - 1	Facility has issued Title V permit, effective May 2003 - 2	Facility has issued Title V permit, effective August 2003 - 3	1 - Title V permit web site for GA	17-Jun
	Attainment for all criteria pollutants	Transportation conformity may have to be re-evaluated based on attainment status of the air quality control region	Transportation conformity budgets already accounted for in air quality planning	2 - Title V permit web sites for VA	17-Jun
				3 - Title V permit web sites for CT	17-Jun
water quality	St. Marys Channel/Cumberland Sound estuary is generally well mixed - 1	Virginia portion of the Chesapeake Bay, Hampton Roads and the Elizabeth River have Class II, Estuarine Waters (Tidal Water - Coastal zone to Fall Line) by the Commonwealth of Virginia State Water Control Board - 1	Thames River in vicinity of Subase is classified SC/SB (water currently classified as SC with a restoration goal of SB) - 2, 8	1 - Final Environmental Impact Statement for Seawolf Class Submarine Homeporting on East Coast of the United States - 1995	17-Jun
	Suspended sediment is continuously transported through the estuary by tidal currents and fresh water inlets with gross transport of approx. 6,148 cy for a single tidal cycle (estimated 600,372 cy of sediment transported seaward every year) - 1	Designated uses include recreational use, except for mixing zones in water immediately below municipal and industrial discharges, and for propogation and growth of a balanced, indigenous population of fish, shellfish and wildlife - 1	However, criteria not currently met due to periodic high bacteria levels and/or low DO in upper reaches of River (away from Subase New London) - 1, 8	2 - CT SB waters define as coastal and marine surface waters determined to be suitable for marine fish, shellfish and wildlife habitat, shellfish harvesting for transfer to a depuration plant and relay (transport) to approved areas for purification prior to human consumption, recreation, industrial and other legitimate uses including navigation - 8	17-Jun
	Water quality monitoring in 1993-1994 showed elevated levels of fecal coliform at most stations, copper and lead at localized stations - 1	Chesapeake Bay and Elizabeth River generally stratified with respect to temperature and salinity - 1	Temperature, salinity and DO vary seasonally and over depth along the Thames - 1, 6	3 - CT SC waters defined as coastal and marine surface waters determined to be suitable for fish, shellfish and wildlife habitat, certain aquaculture operations, recreational uses, industrial and other legitimate uses including navigation. Present water quality conditions preclude the full attainment of one or more designated uses some or all of the time. One or more Water Quality Criteria are not being consistently achieved - 8	17-Jun
		Water temperatures range from 39.2 to 86 degrees Fahrenheit - 1	DO levels in the lower Thames, near the Subase, are at evels that support a healthy ecosystem 1, 6	4 - Non-bloom periods typically have values of 5-6 mg/l	17-Jun
		Numerous point source discharges upstream, where low flushing rates exist, have exacerbated water quality impacts of 68 VPDES permitted facilities discharging to the Elizabeth River, nine being major discharges - 1, 5	Estuary is a tidally influenced system with denser salt water occupying the lower depths of the river - 1	5 - (VPDES) Virginia Pollutant Discharge Elimination System	17-Jun
		Approximately 16,320 acres of shellfish grounds have been condemned in the Elizabeth River due to contaminants and fecal coliforms from a combination of point and non-point sources - 1	Total organic carbon (TOC, substrate for respiration of many bacteria and organisms) varies from 1 to 12 mg/l, with higher levels present proximal to major point source outfalls - 1, 4	6 - DO - dissolved oxygen	17-Jun
		Tributaries to Elizabeth River have heavy metals, petroleum hydrocarbons and PAHs as well as frequent occurrences of low and hypoxic DO - 1, 6, 7	1991 water quality sample near the Subase revealed no detectable PAHs and low metal levels (limited water quality data exists for the Thames River) - 1, 7	7 - PAH - polyaromatic hydrocarbon	17-Jun
		Heavy metals (copper, chromium, nickel, lead, zinc and arsenic), petroleum hydrocarbons and PAHs found in the tributaries to the Elizabeth River - 1, 7		8 - Environmental Assessment for Pier 6 Replacement Project, U.S. Naval Submarine Base New London, December 2004	17-Jun
					17-Jun
super fund sites	No National Priorities List sites in Camden County, Georgia - 1	Norfolk Naval Base (Sewells Point Naval Complex) - 2	New London Submarine Base - 3	1 - National Priorities List Sites in Georgia, www.epa.gov/superfund/sites/npl/ga.htm	17-Jun
				2 - National Priorities List Sites in Virginia, www.epa.gov/superfund/sites/npl/va.htm	17-Jun
				3 - National Priorities List Sites in Connecticut, www.epa.gov/superfund/sites/npl/ct.htm	17-Jun
solid waste	Approximately one-hundred fifteen (115) landfills statewide, seven (7) are in Camden County, which could be utilized for the disposal of solid waste. Tipping fees (not regulated by state) are established by facility owner/operator and are subject to change. Current tipping fees: MSW - $25 - $30/ton; C&D - $25/ton. No information available on tipping fees for special waste. 1, 2, 3	Approximately fifty (50) landfills statewide, that could be utilized for the disposal of solid waste. Tipping fees (not regulated by state) are established by facility owner/operator and are subject to change. Current tipping fees: MSW - $55 - $60/ton and C&D - <$20/ton. No information available on tipping fees for special waste -1, 2, 4	Resource Recovery Facilities are available for disposal of MSW, C&D (clean wood) and certain special wastes (need to have some BTU value). Current tipping fees: MSW - $50 - $60/ton; C&D and special waste - $>$100/ton - 2, 5	1- solid waste means: municipal solid waste (MSW), construction and demolition waste (C&D) and non-hazardous special wastes (e.g., contaminated soils, industrial solids, etc.).	17-Jun

	Kings Bay has an inert material (brick, concrete, yard waste) disposal facility on the base - 3	The base has a refuse disposal agreement with Southeastern Virginia Pulic Service Authority (SPSA) - 1	Available statewide landfill disposal capacity in Connecticut is extremely limited. There are two or three available landfills that would be able to accept C&D and special waste, virtually no landfill disposal capacity for MSW. Two of these landfills will exhaust their permitted capacity by calendar year 2009. Tipping fees (not regulated by state) are established by the owner/operator of the facility and are subject to change. Current tipping fees: C&D - $60 - $80/ton and special waste - $70 - $85/ton. - 1, 2, 5	2 - C&D - construction and demolition debris; MSW - municipal solid waste	17-Jun
				3- State of Georgia, Department of Natural Resources, Environmental Protection	17-Jun
				4- State of Virginia, Department of Environmental Quality	17-Jun
				5 - State of Connecticut Department of Environmental Protection, Bureau of Waste Management	17-Jun
endangered species	High potential for diverse and extensive group of Federal threatened and endangered species - 1	Two subspecies of peregrin falcon, one formally Federally-listed as endangered, one formally Federally-listed as threatened commonly observed and have nested in area of Craney Island - 1, 3	No known state or federally listed threatened or endangered species in the Thames River -1	1 - Final Environmental Impact Statement for Seawolf Class Submarine Homeporting on East Coast of the United States - 1995	17-Jun
	Aquatic and upland species occur in area through all times of the year - 1	Important fall migratory stopover or over-wintering area for peregrine falcons - 1, 3	Occurrence of leatherback turtle (Federally threatened) and loggerhead turtle (Federally threatened) in Long Island Sound is rare to uncommon - 2	2 - Environmental Assessment for Pier 6 Replacement Project, U.S. Naval Submarine Base New London, December 2004	17-Jun
	Of particular concern are the right whale, manatee and sea turtles - 1	Bald eagles, Federally listed as endangered, observed as transients in the area during migration periods in spring and fall - 1	Peregrine falcon frequents area from time to time - 2, 3	3 - Peregrine falcon de-listed from federal Endangered and Threatened species list in 1999, species currently being monitored	17-Jun
	Northern right whale protected by the Marine Mammal Protection Act - 1	Piping plover, Federally-listed as threatened, observed as transients in the area during migration periods in spring and fall - 1			17-Jun
	Kings Bay within the Florida/Georgia calving ground designated as critical habitat for the right whale - 1	Piping plover regularly observed in late April, early May at Craney Island and nesting there - 1			17-Jun
	Right whales exhibit behaviors making them prone to ship collisions - 1	State endangered Wilson's lover has nested there - 1			17-Jun
	Whale sightings at the southern tip of Cumberland Island (6 miles from Site 6) - 1	Least tern, species of special concern in VA, nests along shoreline of Craney Island disposal site; provided special protection by ACE during nesting season - 1			17-Jun
	Six documented deaths of right whales attributed to ship collisions between 1970 and 1990, with two more occurring near the FL/GA calving area since then - 1	Threatened loggerhead and green, and the endangered Kemp's ridley sea turtles known to forage in Chesapeake Bay, though not generally observed in the vicinity of the Norfolk piers - 1			17-Jun
	West Indian manatee found in southeastern Georgia in summer months - 1	No threatened or endangered freshwater fish or invertebratee - 1			17-Jun
	Especially prone to collisions with boats, are often struck by boats - 1	No known threatened or endangered species of plants, insects, reptiles, amphibians or birds on upland areas of base - 1			17-Jun
	Protected under the:				17-Jun
	US Endangered Species Act of 1973				17-Jun
	US Marine Mammal Protection Act of 1972				17-Jun
	Georgia Endangered Wildlife Act of 1973				17-Jun
	Florida Growth Management Act of 1985				17-Jun
	Kings Bay is a favorite congregation area for manatees during warm season, moving between area near Crab Island and the Subase in predictable patterns - 1				17-Jun
	Major congregation area north of Port Services T-Pier, and also occur in Site 6 - 1				17-Jun

	Five species of sea turtles found in southeastern Georgia waters				17-Jun
	Loggerhead utilizes the barrier islands of southeastern GA as nesting grounds - 1				17-Jun
	Cumberland and Amelia Islands are excellent habitat for sea turtles, with the turtles frequenting the nearshore and open ocean areas to the east of these islands - 1				17-Jun
	Present from early April until the first few weeks of December, with October being peak month - 1				17-Jun
	No sightings of sea turtles in Kings Bay but a female building a nest was sighted at the southern tip of Cumberland Island, 6 miles south of Pier 6 - 1				17-Jun
	Short-nosed sturgeon (Federal endangered species) has been observed historically (last sighting 1991) but potential for their presence still exists - 1				17-Jun
	Wood Stork (Federally listed) is frequent visitor to Subase for feeding and roosting - 1				17-Jun
	Feeding and roosting area designated as wood stork mitigation and management area affording the birds special protection - 1				17-Jun
	During dredging operations, wood storks feed in dredge disposal areas - 1				17-Jun
	Least tern, state threatened species, occurs on base annually - 1				17-Jun
	Nests on former dredge disposal area near Pier 6 and the MSF, and on roof of Trident Refit Warehouse - 1				17-Jun
	Access to these nesting areas is restricted and vegetative growth is discouraged in the dredge disposal area - 1				17-Jun
	Gopher tortoise (threatened species in GA, Federal candidate species) has historically been observed at the base - 1				17-Jun
	Potential habitat for the eastern indigo snake (Federally threatened species) on the base - 1				17-Jun
	Burrow of gopher tortoise a favorite retreat of the indigo snake - 1				17-Jun
channel depth	47'(42'minimum +3' advance maintenance" +2' rock clearance) - 3	53' (52'minimum +1' overdredge) 2, 3	41' (39'minimum +2' overdredge) 3	1 - Explosive Handling Wharf No. 1 by Max D. Sorota and Robert E. Bertolino, published in the American Society of Civil Engineers Proceedings of the Ports 1989 Conference	17-Jun
				2 - Solicitation No. W91238-05-B-0004, Solicitation, Offer and Award issued by USA Engineer District, Norfolk, contact information, Cheryl Jones, 757-201-7242	17-Jun
				3 - datum of depths is Mean Low Water	17-Jun
dredging frequency	Every year, extremely high shoaling rate - 1	Approximately every 4 years, high shoaling rate - 1	Approximately every 15 yrs, low shoaling rate - 1	1 - Final Environmental Impact Statement for Seawolf Class Submarine Homeporting on East Coast of the United States - 1995	17-Jun
dredge sediment disposal	Onsite upland disposal site; GA & FL beaches - 1	Craney Island upland disposal facility - 1	NL open water site; Thames River In-channel Confined Aquatic Disposal (CAD) cell - 1	1 - Final Environmental Impact Statement for Seawolf Class Submarine Homeporting on East Coast of the United States - 1995	17-Jun

	There are 3 upland Confined Disposal Facilities (CDF) in current use with an estimated lifespan of 30 years in 2005. To minimize sediment volume placement in the CDFS to prolong usable life, sandy sediments suitable for beach nourishment are placed on GA & FL beaches. - 2	Sediments are generally not suitable for open water disposal and must be placed in an upland Confined Disposal Facility (CDF) at the Craney Island Materials Management Area. Craney Island currently must be managed in an increasingly intensive manner for dewatering and placement of sediment to maximize capacity; currently estimates make Craney Island available to 2020. Proposed plans to expand Craney Island will result in significant direct impacts to existing shallow water habitats. - 2	Maintenance dredging is planned and authorized at New London around the piers with adequate disposal options for the sediments at the nearby New London Disposal Site (NLDS) open water site and within Thames River Confined Aquatic Disposal (CAD) cells. Long intervals between maintenance dredging events minimizes demands on sediment management options, extending availability of disposal options. In 1995 the estimated remaining capacity of the NLDS was 18 million cy, approximately 46 yrs at the long term average disposal of 370, 000 cy/ yr. Based upon disposal use over the past 10 yrs that has averaged less than half that value, at least 44 yrs of use is still available at NLDS. - 1	2 - DON 0033	17-Jun
water table	Three separate aquifers located within the subase - 1	Piezometric surface of the water table aquifer is generally found at 4 to 4 1/2 feet below the ground surface - 1	Groundwater in some areas of base averages about 8 feet below the surface, with the lower base having an elevation of approximately 5-7 feet, and the upper base having an elevation of about 8-10 feet with permeable soils - 2, 3	1 - Final Environmental Impact Statement for Seawolf Class Submarine Homeporting on East Coast of the United States - 1995	17-Jun
	Base is very flat (slopes of 0.2-1.0%) with surface runoff being slow - 1	Shallow aquifer is recharged primarily by direct infiltration of incidental precipitation - 1		2 - US EPA Waste Site Cleanup & Reuse in New England, http://yosemite.epa.gov/r1/npl_pad.nsf/f52fa5c31fa8f5c885256adc0050b631/3052EDBCA...	17-Jun
	Infiltration of surface water is rapid since most soils have high percolation rates - 1	Periods of extreme rainfall can cause a rise in the water table of up to 30 inches while extended dry spells can cause a 24 inch lowering from the normal depth of approximately 4 feet -1		3 - DEP Water Bureau staff	17-Jun
	High water table - 1				
remediation costs			$175 million		17-Jun

Physical Infastructure

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DATA

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source	DECD
road condition	OK		OK	2005	DECD	17-Jun
bridge condition	N/A		OK	2005	DECD	17-Jun
planned capacity	OK		NA	2005	DECD	17-Jun
current volume	OK		NA	2005	DECD	17-Jun
interstate access	< 1 Mile		< 1 Mile	2005	DECD	17-Jun
airport access	30 Mi.		48 Mi.	2005	DECD	17-Jun
maritime civilian access						
percent municipal water*	100	100	100	2005	DECD	17-Jun
percent sewered*	100	100	100	2005	DECD	17-Jun
telecomm	OK		OK	2005	DECD	17-Jun
electric	Ok		OK	2005	DECD	17-Jun
broadband				2005	DECD	17-Jun
gas	OK		OK	2005	DECD	17-Jun
soil type & suitability for const.	Poor Soils and High Water Table		NA	2005	DECD	17-Jun

*for new developments

Geography & Climate

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DATA

	Camden County, GA	Norfolk, VA MSA	New London County, CT	Year	Data Source	Western CT	DOE	CERC	DEP	DOL
25-50 mile drive-time maps	included in powerpoint	included in powerpoint	included in powerpoint		ESRI, Data Analyst			15-Jun		17-Jun
topo maps			attached as pdf						17-Jun	
aerial photos			attached as pdf						17-Jun	
Distance to (miles): Atlanta, GA	281	506	848	2005	http://www.geobytes.com/CityDistanceTool.htm		16-Jun			
Distance to (miles): Jacksonville, FL	40	558	937	2006	http://www.geobytes.com/CityDistanceTool.htm		16-Jun			
Distance to (miles): Gibralter, Gibralter	4,305	3,842	3,529	2005	http://www.geobytes.com/CityDistanceTool.htm		16-Jun			
Distance to (miles): Lisbon, Portugal	4,063	3,582	3,265	2005	http://www.geobytes.com/CityDistanceTool.htm		16-Jun			
Distance to (miles): Paris, France	4,401	3,886	3,524	2005	http://www.geobytes.com/CityDistanceTool.htm		16-Jun			
Distance to (miles): London, England	4,246	3,726	3,360	2006	http://www.geobytes.com/CityDistanceTool.htm		16-Jun			
Distance to (miles): Reykjavik, Iceland	3,424	2,900	2,521	2005	http://www.geobytes.com/CityDistanceTool.htm		16-Jun			
Distance to (miles): Oslo, Norway	4,487	3,960	3,582	2005	http://www.geobytes.com/CityDistanceTool.htm		16-Jun			
land use/cover, wetlands			included in powerpoint & attached as pdf						17-Jun	
soil types			attached as pdf						17-Jun	

	Kings Bay	Portsmouth, Norfolk Naval Shipyard	New London, Thames River							
Mean high water*	2.023 meters	0.882 meters	0.840 meters		CT DEP				17-Jun	
Mean tide level*	1.043 meters	0.462 meters	0.449 meters		CT DEP				17-Jun	
Highest observed water level (meters)	2.696	2.449	3.224		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
Mean higher high water (mhhw) (meters)	2.134	0.946	0.930		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
mean high water (mhw) (meters) - mean high tide line	2.023	0.882	0.840		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
[illegible]erican vertical datum (meters)		0.546	0.560		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
mean sea level (msl) (meters)	1.084	0.464	0.468		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
mean tide level (mtl) (meters)	1.043	0.462	0.449		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
mean low water (mlw) (meters)	0.062	0.042	0.059		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
mean lower low water (mllw) (meters)	0.000	0.000	0.000		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
lowest observed water level (meters)	-0.757	-1.087	-1.220		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
average elevation	16 ft	12 ft	33 ft		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
avg daily temperature	68 degrees	59.7 degrees	50.3 degrees		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
normal heating degree days	1353	3477	5824		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
normal cooling degree days	2636	1560	588		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
normal precipitation	52.34 in	45.74 in	48.43 in		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
normal snowfall	0	8.8 in	21.1 in		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
days with over 0.01 inches of precipitation	116	115	97		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
average relative humidity	89% morning, 56% afternoon	78% morning, afternoon 57%	75% morning; afternoon 59%		Western CT State Univ Meterological Studies & Weather Ctr	17-Jun				
tropical storms or hurricanes per year (within 180 nmi)	1.402	1.277	0.750		https://www.cnmoc.navy.mil/nmosw/tr6203nc/0start.htm				21-Jun	

*[illegible]enced in meters above NOAA's Mean Lower Low Water (MLLW) vertical tidal datum. MLLW is defined as "The average of the lower low water height (i.e., the lowest of the low waters (or single low water) of any [illegible]d tidal day due to the declinational effects of the Moon and Sun.) of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a [illegible]e station is made in order to derive the equivalent datum of the National Tidal Datum Epoch."

Veterans Resources

Lead DVA Linda Schwartz 860-721-5891 linda.schwartz@po.state.ct.us

DATA

	GA	VA	CT	Year	Data Source	DVA
DoD retirees 65+ Yrs	29,787	43,991	6,099	2004	DoD, Office of Actuary	17-Jun
Coast Guard retirees 65+ Yrs	288	778	244	2004	DoD, Office of Actuary	17-Jun
DOD monthly payment 65+ Yrs	47,934,000	98,985,000	7,079,000	2004	DoD, Office of Actuary	17-Jun
CGS monthly payment 65+ Yrs	413,000	1,493,000	455,000	2004	DoD, Office of Actuary	17-Jun
DoD retirees	81,752	134,243	10,635	2004	DoD, Office of Actuary	21-Jun
Army retirees	43,015	42,581	3,008	2004	DoD, Office of Actuary	21-Jun
Navy retirees	12,234	53,167	4,600	2004	DoD, Office of Actuary	21-Jun
Marines retirees	3,788	9,292	539	2004	DoD, Office of Actuary	21-Jun
Air Force retirees	22,715	29,203	2,168	2004	DoD, Office of Actuary	21-Jun
Coast Guard retirees	700	2,797	630	2004	DoD, Office of Actuary	21-Jun

Medical
Prescriptions
Shopping
Social Services

The **submarine base fire department has 54 FTE with an annual salary and operating budget of $5.6 million**. There are at least 17 firefighters on staff 24 hours a day, 7 days per week. These firefighters are all trained in emergency preparedness to at least the EMT level. Besides the base necessities, this fire department **responds to working fires in the surrounding communities** of Groton, Mystic, Waterford, Ledyard and Gales Ferry. **Two ambulances** provide mutual aid to Groton, Ledyard, Gales Ferry and New London. If the submarine base resources relocated, these communities would have to absorb these costs for emergency services.

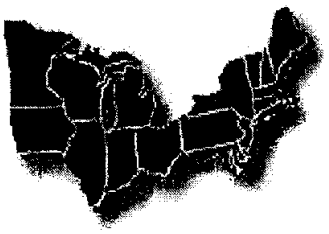
In addition, **the U.S. Navy has two additional boat patrols in New London** that would have to be replaced by the U.S. Coast Guard, should the U.S. Navy relocate.

CIRCULATION OF THIS FULL REPORT IS RESTRICTED to paying members of the Northeast-Midwest Congressional and Senate Coalitions and states that contribute to the Northeast-Midwest Institute. A general circulation version of this report, without the Northeast-Midwest data tables and appendix, is available via www.nemw.org/fedspend.htm#reports.

April 2005 Updated Report on

Base Closings and Military Presence in the Northeast-Midwest:

The Nation's Unguarded Region



Matt Kane
Northeast-Midwest Institute
© April 2005

Updated Northeast-Midwest Institute Report

Unlike the May 2004 report, the April 2005 update to *Base Closings and Military Presence in the Northeast-Midwest* includes data for all 50 states regarding changes and ranks for the decline in active duty military and total Defense Department personnel from 1987 to 2002, and also information about military reserve and National Guard forces. The Northeast-Midwest accounts for a greater share of the nation's reserves and National Guard than its active duty military personnel. This revised April 2005 report analyzes the regional distribution of reserve and guard forces and also includes them in totals for Defense Department military personnel.

The Northeast-Midwest Institute report on *Base Closings and Military Presence in the Northeast-Midwest* – both the 2005 update and the original 2004 version – use Defense Department personnel data from September 30, 1987, and September 30, 2002, to measure the state and regional impacts of base realignment and closure (BRAC) decisions from 1988, 1991, 1993, and 1995. While the numbers are affected by actions aside from the BRAC rounds, they show the actual shifts in personnel over time and therefore offer the best information about staffing changes. These numbers allow for comparisons of actual personnel from before any decisions about realignments and closures to seven years after the 1995 decisions. By contrast, data from the Defense Department's Office Economic Adjustment on "1995 BRAC Commission Estimates of Job Gains and Losses" are based on expected outcomes only and fail to incorporate important changes that the 1995 Base Realignment and Closure Commission made to previous BRAC commission decisions about base closings.

Northeast-Midwest Institute

The Center for Regional Policy

The Northeast-Midwest Institute is a Washington-based, private, non-profit, and non-partisan research organization dedicated to economic vitality, environmental quality, and regional equity for Northeast and Midwest states. Formed in the mid-1970s, it fulfills its mission by conducting research and analysis, developing and advancing innovative policy, providing evaluation of key federal programs, disseminating information, and highlighting sound economic and environmental technologies and practices.

The Institute is unique among policy centers because of its ties to Congress through the Northeast-Midwest Congressional and Senate Coalitions. Co-chaired by Sens. Susan Collins (R-ME) and Jack Reed (D-RI), and Reps. Steven LaTourette (R-OH) and Marty Meehan (D-MA), the bipartisan coalitions advance federal policies that enhance the region's economy and environment.

The states served by the Institute and Coalitions are Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

For more information about the Institute and its work, visit www.nemw.org.

Summary: The Regional Imbalance in the Nation's Military Presence

The Northeast and Midwest stand out as the nation's least guarded regions at a time when military concerns increasingly focus on homeland defense and as the U.S. Defense Department prepares to significantly reduce its installations on home soil. The 18 northeastern and midwestern states, which hold about 40 percent of the nation's population, account for only just more than 10 percent of the active duty military personnel located in the country. The region contains densely populated metropolitan areas, critical transportation and telecommunications infrastructure, key border crossings and ports for international trade, and the resources that produce more than 40 percent of the nation's annual economic output – yet together the 18 states of the Northeast-Midwest contain fewer active duty military personnel than Texas alone, or the state of California.

That regional imbalance in the military's national presence could grow worse if the burden for military cutbacks in 2005 and beyond disproportionately falls on the Northeast-Midwest, as it has in past. From 1987 to 2002, when the Defense Department carried out four rounds of base closings and realignments, the number of active duty military personnel fell by 41 percent in the Northeast-Midwest, compared to 21 percent in the South and West. For reserve and National Guard forces, the region experienced a 37 percent drop, compared to 22 percent for the rest of the country. For civilian Defense Department employees, the decline in the Northeast-Midwest was 41 percent, compared to 34 percent elsewhere.

In May 2005, the Department of Defense will release recommendations for base closings and realignments designed to reduce redundancies, trim excess physical capacity, and yield major cost savings. The Defense Department estimates that its current 276 major U.S. installations exceed its infrastructure needs by 24 percent, using the 1989 ratio of personnel to physical plant. Based on the experience of base realignment and closure (BRAC) rounds in 1993 and 1995, the Defense Department anticipates that BRAC 2005 will yield a one-time savings of $3 billion to $5 billion by 2011 and then reoccurring, annual savings of $5 billion to $8 billion thereafter. Closings and realignments will affect all types of defense facilities, not just military bases.

This reduction in infrastructure costs could free up funds not only for Defense Department priorities but also for tax cuts or spending by other federal agencies. Very few Northeast-Midwest states benefit disproportionately from defense spending. The Northeast-Midwest region, which is estimated to contribute 44 percent of the federal taxes, accounts for just 25 percent of Defense Department spending in the United States, compared to 41 percent of the U.S. spending by all other federal agencies, according to fiscal 2003 data. Regional inequities in overall defense spending significantly and adversely affect the return on federal tax dollar for many northeastern and midwestern states.

The forthcoming base realignments and closings must be made in a way that recognizes regional inequities in defense capabilities and spending, addresses homeland defense concerns, and acknowledges that the military's presence is important to states and regions in this age of unconventional threats, especially terrorism. When it comes to homeland security, the military has only a minor presence in the vital Northeast-Midwest region, and, as the U.S. General Accounting Office has noted, the Defense Department's "force structure is not well tailored to perform domestic military missions." While it would make little sense to distribute military personnel throughout the county simply for the sake of geographical balance, it also would make little sense to further reduce the already small share of military personnel in the vulnerable Northeast-Midwest.

Low Military Presence in the Northeast-Midwest

Regional shares of active duty military personnel

The Northeast and Midwest account for a startlingly small share of the nation's active duty military personnel, even before decisions about U.S. base closings and realignments for 2005. The defense presence is skewed to the West and even more so to the South. The Northeast and Midwest experienced significantly steeper drops in active duty military personnel and total Defense Department personnel from the first round of base closings in 1988 to the present. (See Table 1.) As fiscal 2003 opened (six months before troops were deployed to Iraq), only about one-tenth (10.9 percent) of all the active duty military personnel located in the United States were based in

the Northeast-Midwest, even though the region comprised almost two-fifths (39.6 percent) of the nation's population. (See Table 2.) The regional breakdown for active duty military – not including reserve and guard forces –is as follows:

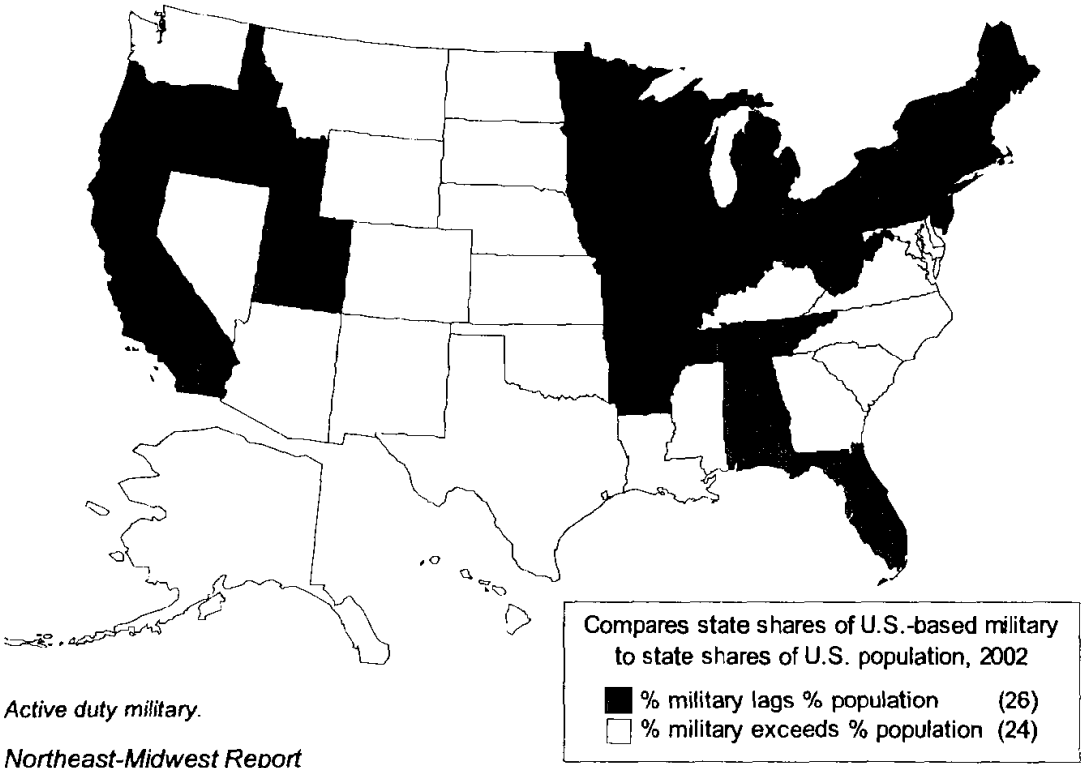
- Midwest – 3.4 percent of the active duty military personnel in the country and 18.6 percent of the population.
- Northeast – 7.4 percent of the active duty military and 21.0 percent of the population.
- South – 55.4 percent of the active duty military and 33.7 percent of the population.
- West – 33.7 percent of the active duty military and 26.7 percent of the population.

Defense Department data for levels as of September 2002 show 113,700 active duty military personnel located in the Northeast-Midwest, 578,800 in the South, and 352,600 in the West, with 123,900 in California alone. The Northeast-Midwest also lags behind the South and West for share of reserve and National Guard forces, at about one-third (34.8 percent) of the national total; share of civilian Defense Department personnel, at just more than one-quarter (26.0 percent); and share of overall Defense Department personnel, at just less than on-quarter (24.0 percent). (See Tables 2 and 3.) Aside from military bases, some of the larger concentrations of civilian personnel in the Northeast-Midwest are found at Defense Department arsenals, weapons centers, and similar facilities where workers research, design, test, acquire, and produce weapons and equipment; military academies, colleges, and training facilities; supply depots and supply service centers; military hospitals and medical centers; defense logistics centers; and shipyards where naval vessels are maintained and produced.

Concentrations of active duty military personnel by state

Comparisons between state shares of U.S.-based active duty military personnel and state shares of the U.S. population indicate where the military are concentrated at present, prior to the BRAC 2005 decisions. The Northeast-Midwest includes only two of the 24 states where the share of active duty military exceeds the share of population. The two states are Delaware and Maryland. The other sixteen Northeast-Midwest states have relatively low concentrations of military personnel given the size of their populations. (See Table 2.) By contrast, the share of active duty military exceeds the share of population for 13 of 18 states in the West and nine of 14 states in the South. The Northeast-Midwest accounts for six of the top ten most populated states (NY, IL, PA, OH, MI, and NJ) but none of the ten states with the largest populations of active duty military personnel. (See Tables 4 and 5 for levels and ranks of active duty military, total Defense Department personnel, reserves and National Guard, and Defense Department civilian employees.)

States where Share of Military Lags Share of Population



Active duty military.

Northeast-Midwest share of major defense installations

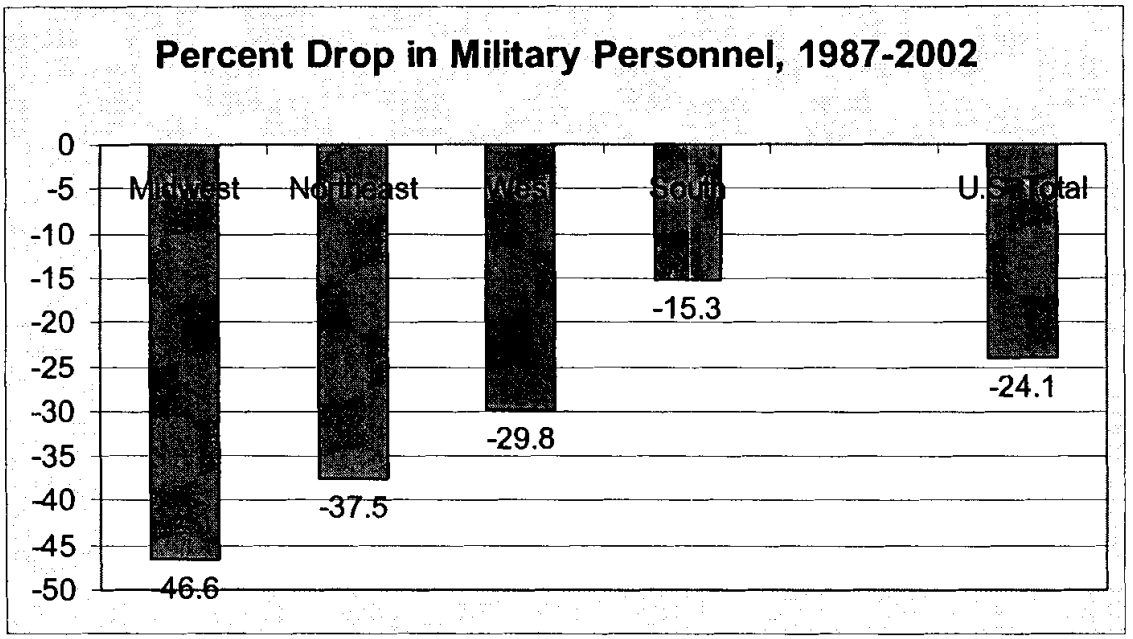
Not surprisingly, northeastern and midwestern states also account for a relatively small share of the major military bases located in the United States, according to the Defense Department's *Base Structure Report* for the start of fiscal 2003. For sites larger than ten acres and with plant replacement values of more than $10 million, only 76 of the 300 installations with the largest number of personnel are located in the Northeast and Midwest. The region, therefore, is home to just one-fourth (25.3 percent) of the top 300 sites. (See Table 6 for regional data on top 300. For a detailed listing of Defense Department properties in the Northeast-Midwest by state, see the Appendix.) For the purposes of this Northeast-Midwest Institute report, personnel levels, in addition to installation size and value, were used to define major sites.

Disproportionate Cuts for the Northeast-Midwest, 1987-2002

The Defense Department significantly reduced the number personnel in the United States from 1987 to 2002, in part through decisions on base closings and realignments in 1988, 1991, 1993, and 1995. The Northeast-Midwest sustained a disproportionately high share of those reductions. Of the total decline in U.S.-based active duty military over the period, almost one-quarter of the cut (23.4 percent) occurred in the 18 northeastern and midwestern states, even though the region accounted for only about one-seventh (13.9 percent) of the nation's military personnel in 1987. For total U.S.-based Defense Department personnel, the Northeast-Midwest accounted for 37.7 percent of the drop from 1987 to 2002 but only 27.9 of the baseline 1987 level. (See Table 7.) More than half (52.8 percent) of the cuts in reserve and National Guard personnel from 1987 to 2002 occurred in the Northeast-Midwest region, which accounted for about two-fifths (39.8 percent) of the nation's 1987 reserve and guard. For Defense Department civilian employees, the region accounted for 28.3 percent of the personnel in 1987 but sustained 32.4 percent of the cuts through 2002. (See Table 8.)

Percentage cuts by region

Defense Department data show that the number of U.S.-based active duty military personnel nationwide dropped by 332,400, or 24.1 percent, from 1.377 million in September 1987 to 1.045 million in September 2002. Active duty military personnel in the Northeast-Midwest fell 40.6 percent over the period. The drops were steepest for the Midwest, where the number of military personnel fell by 46.6 percent from 67,000 to 35,800, and for the Northeast, where the number fell 37.5 percent from 124,400 to 77,800. In the Northeast's six New England states, the number of active duty military personnel fell 58.4 percent from 30,600 to 12,700. The percentage decline for the West, at 29.8, also exceeded the national rate. The South, however, experienced only a 15.3 percent drop. (See Table 9.) In terms of U.S.-based reserves and National Guard, the Northeast and Midwest experienced a 36.9 percent drop, compared to a 21.9 percent decline in the South and West. (See Table 10.) For civilian Defense Department personnel in the United States, the Northeast-Midwest saw a decline of 41.0 percent from 1987 to 2002, while the drop for the rest of the nation was 33.8 percent. (See Table 11.) And for Defense Department personnel overall, the totals declined 38.6 percent in the region and 24.7 percent elsewhere. (See Table 12.)



Active duty military.

State declines

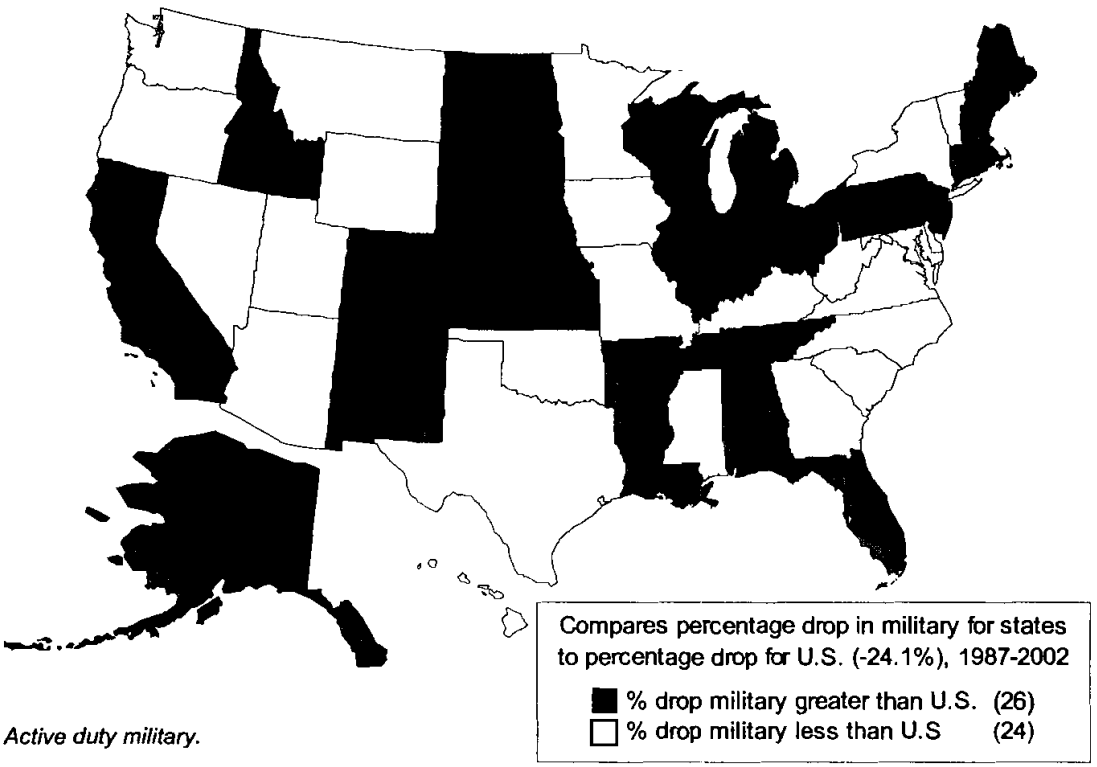
At the state level, nine Northeast-Midwest states and six others saw a drop of 40 percent or more in the active duty military personnel located within their borders from 1987 to 2002. Among those 15 states, the steepest percentage declines affected New Hampshire, with a 92.1 percent drop of 3,800 military personnel to just 300; Michigan, with an 87.4 percent drop of 8,000 to 1,200; and Indiana, with an 84.1 percent drop of 5,500 to 1,000. In percentage terms, California ranked 15th behind nine Northeast-Midwest states for its 40.0 percent drop in active duty military personnel from 1987 to 2002, although California sustained the largest decline in number (down 82,500). (See Table 9 for detailed data on active duty military personnel in all 50 states. See Tables 10 and 11 for detailed data on reserves and National Guard and Defense Department civilian employees in Northeast-Midwest states.)

States Where Active Duty Military Declined by 40 Percent or More, 1987-2002

	1987 Military	*2002 Military*	*Change in Military 1987-2002*	*Percentage Change in Military 1987-2002*	*Rank for Percentage Decline*
New Hampshire	4,143	326	-3,817	-92.1	1
Michigan	9,300	1,173	-8,127	-87.4	2
Indiana	6,543	1,041	-5,502	-84.1	3
Tennessee	10,549	2,554	-7,995	-75.8	4
Massachusetts	9,355	2,427	-6,928	-74.1	5
New Jersey	19,673	6,306	-13,367	-67.9	6
Maine	5,849	2,689	-3,160	-54.0	7
Pennsylvania	6,600	3,098	-3,502	-53.1	8
Alabama	23,825	11,354	-12,471	-52.3	9
Arkansas	9,793	4,855	-4,938	-50.4	10
South Dakota	6,744	3,350	-3,394	-50.3	11
Nebraska	13,498	7,793	-5,705	-42.3	12
Ohio	11,780	6,899	-4,881	-41.4	13
Connecticut	7,223	4,239	-2,984	-41.3	14
California	206,495	123,948	-82,547	-40.0	15

Nationwide, the percentage decline in active duty military personnel exceeded the U.S. mark of 24.1 percent for 26 states, including two-thirds (12) of the 18 northeastern and midwestern states. (See Table 9.)

States where Percent Drop in Military Exceeded U.S. Rate



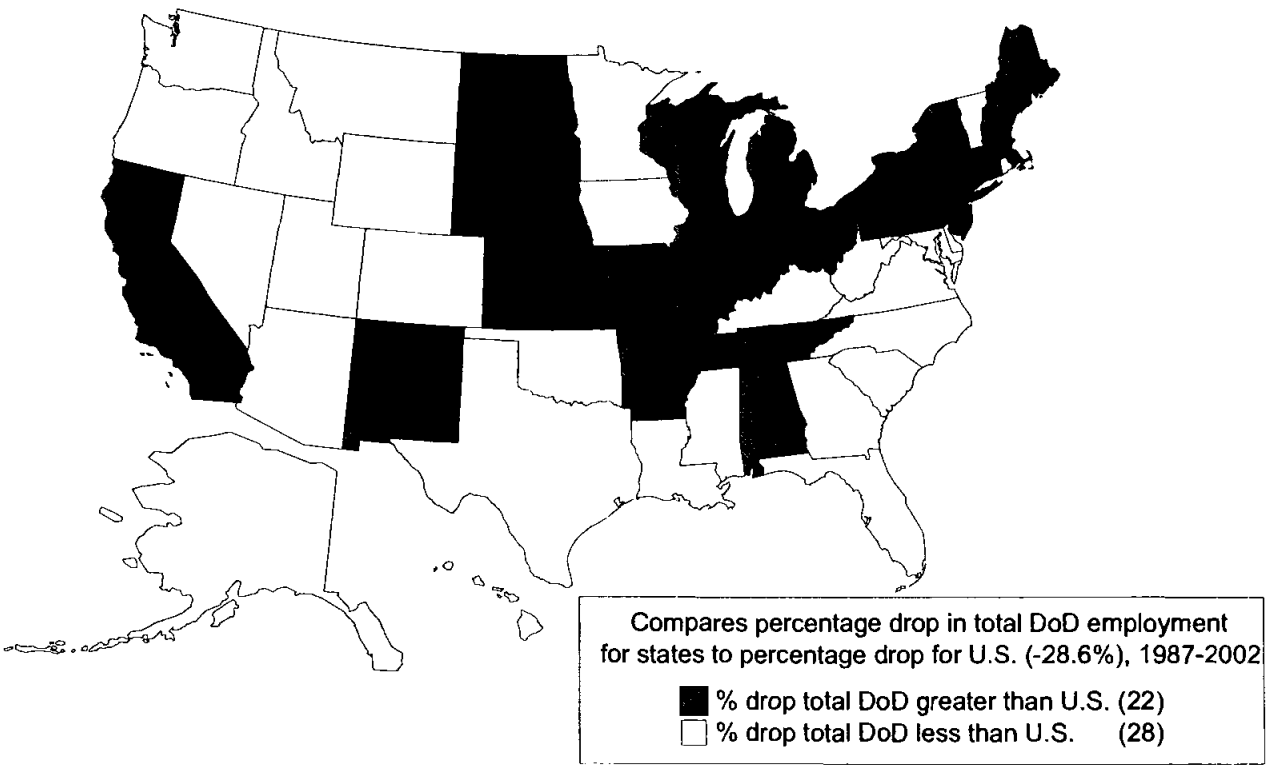
Active duty military.

In terms of percentage declines for overall Defense Department personnel (active duty military, reserves and National Guard, and civilian), the Northeast-Midwest accounted for eight of the ten states that experienced the steepest drops from 1987 to 2002, and two of the next five. New Hampshire and New Jersey both experienced drops of more than 50 percent. California ranked seventh behind six Northeast-Midwest states for its 42.2 percent drop in total Defense Department personnel, although California sustained the largest decline in number (200,300). (Table 12 for detailed data on total Defense Department personnel in all 50 states.) In some cases, for states in the region and throughout the country, reductions in personnel may have resulted from a shift in workers from one state to defense facilities in nearby states.

States with the Steepest Percentage Declines in Overall Defense Department Personnel, 1987-2002

Includes reserves, National Guard, and DoD civilian.	*1987 Total DoD Personnel*	*2002 Total DoD Personnel*	*Change in Total DoD Personnel 1987-2002*	*Percentage Change in Total DoD Personnel 1987-2002*	*Rank for Percentage Decline*
New Hampshire	13,638	6,566	-7,072	-51.9	1
New Jersey	86,749	43,054	-43,695	-50.4	2
Michigan	70,378	35,738	-34,640	-49.2	3
Massachusetts	62,029	31,542	-30,487	-49.1	4
Pennsylvania	138,772	77,352	-61,420	-44.3	5
Indiana	60,335	34,134	-26,201	-43.4	6
California	474,802	274,471	-200,331	-42.2	7
New York	137,163	79,436	-57,727	-42.1	8
Maine	26,385	15,681	-10,704	-40.6	9
Connecticut	28,222	16,923	-11,299	-40.0	10
Tennessee	55,459	34,271	-21,188	-38.2	11
Alabama	97,415	61,389	-36,026	-37.0	12
Ohio	108,210	69,333	-38,877	-35.9	13
Illinois	114,881	75,413	-39,468	-34.4	14
Nebraska	30,251	19,917	-10,334	-34.2	15

States where Percent Drop in Total Defense Exceeds U.S. Rate



Major Base Closings from Previous BRAC Rounds

In keeping with recommendations from the Base Realignment and Closure Commissions for 1988, 1991, 1993, and 1995, the Defense Department closed about 450 installations in the United States and the territories, including 95 major facilities in the states and two in Guam. For seven of the 95 major closings in states – including three in the Northeast-Midwest – the use of the military facilities was shifted over to the reserves and National Guard.

The Northeast-Midwest accounted for 35 of the 95 major closings in the states, or more than one-third of the total, despite the region's smaller share of Defense Department personnel in 1987 (13.9 percent of the U.S.-based active duty military personnel and 27.9 percent of all Defense Department personnel). Major closings took place in 11 of the 18 northeastern and midwestern states, as well as eight of 18 western states and nine of 14 southern states. And the Northeast and Midwest accounted for seven of the 12 states that experienced three or more major closings during the prior BRAC rounds – PA (6), IL (5), NY (5), IN (4), MD (4), MA (3), and OH (3). (See Table 13.) California accounted for 24 of the 95 major closings from prior BRAC rounds.

The Defense Department estimates that the four previous BRAC rounds created a net savings to the federal government of $29 billion through fiscal 2003 from all closures and realignments in the United States after accounting for associated expenditures, including environmental restoration costs. The department estimates reoccurring, annual savings of $7 billion beyond fiscal 2003 through reduced operating costs and increased operating efficiencies.

In selecting major sites for closure in prior BRAC rounds, the Defense Department and the BRAC Commissions looked at the military value of the facilities compared to current needs and future plans for the armed forces, with an eye toward reducing redundancies and costs, increasing efficiencies, avoiding investment in deteriorating infrastructure, and consolidating technology and expertise in the case of research and design operations and medical centers. The deciding factors for many closings were issues common in the more densely populated areas of the Northeast-Midwest – land constraints, high costs, urban growth and the resulting encroachment upon the military's ability to maneuver in an area, and the likelihood that the Defense Department would receive significant revenues from the sale of a closed property. Many of the same factors will come into play for BRAC 2005.

BRAC 2005 Process and Criteria

BRAC Process

For BRAC 2005, the secretary of defense will release by May 16, 2005, a list of military installations recommended for reductions and closings based on force structure plans, infrastructure inventory, and specific criteria for the 2005 BRAC round. The list of proposed closings and realignments will go to the nine-member BRAC Commission, recently appointed by the president. The BRAC Commission will review the secretary's recommendations, hold public meetings to solicit input, change the secretary's recommendations if necessary, and submit its own recommendations to the president by September 2005. In the past, BRAC Commissions have adopted the vast majority of the secretary's recommendations. If the president approves the commission's 2005 recommendations, they become binding upon the Defense Department unless Congress enacts a joint resolution disapproving the full list of recommendations within 45 legislative days of submission by the president. If the president disapproves of the recommendations, the commission must revise its recommendations and resubmit them to the president by October 20, 2005, again for approval and implementation, barring disapproval from Congress.

BRAC Criteria and Homeland Defense Issues

Both the secretary of defense and the BRAC Commission will make decisions about base closings and realignments using criteria compiled by the Defense Department and reviewed by Congress. As with previous BRAC rounds, the primary emphasis for 2005 falls on criteria related to the military value of the installations. The 2005 BRAC criteria are very similar to criteria used in previous BRAC rounds but with an added emphasis on joint capabilities and utilization among the different components of the armed forces. The 2005 criteria contain a number of other differences, including mention of "staging areas for the use of the armed forces in homeland defense missions." Explicit mention of homeland defense in the criteria may be important to the Northeast-

Midwest region, which accounts for only about 15 percent of the nation's land but holds about 40 percent of the nation's people and includes many potential targets for terrorism, as demonstrated by the horrific attacks on New York City on September 11, 2001.

Some have criticized the Defense Department's existing force structure plans for not adequately addressing homeland security threats and domestic military missions, although the department has made adjustments and expects to make more as part of its 2005 Quadrennial Defense Review. In January 2004, U.S. Senator Kay Bailey Hutchinson (R-TX) called on the Defense Department to alter its 2005 BRAC criteria in light of domestic military concerns, saying in a letter to the Pentagon that the Department of Defense "should also consider how closing or [realigning] installations affects our homeland security. The current... criteria, very similar to that proposed in previous BRAC rounds, do not fully reflect the security issues our country faces in the wake of September 11, 2001. Our nation is not dealing with the same threats we were in 1995 and therefore we must develop new strategies to insure the military does not close a base only to later realize its costly mistake."

Final Criteria

The final BRAC 2005 criteria are listed below. The first four items relate to the issue of military value and are weighted more heavily, while the last four recognize other considerations.

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 the joint warfighting, training, and readiness.

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.

3. The ability to accommodate contingency, mobilization, and future total force requirements at both existing and potential receiving locations to support operations and training.

4. The cost of operations and the manpower implications.

5. The extent and timing of potential costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed the costs.

6. The economic impact on existing communities in the vicinity of military installations.

7. The ability of both the existing and potential receiving communities' infrastructure to support forces, missions, and personnel.

8. The environmental impact, including the impact of costs related to potential environmental restoration, waste management, and environmental compliance activities.

Conclusion: Avoid Cuts in the Military for the Northeast-Midwest

The Defense Department and the 2005 BRAC Commission should steer clear of base closings and deep cuts in military personnel for the Northeast-Midwest region in 2005 and beyond. The Northeast and Midwest have sustained steep reductions in Defense Department personnel through the four rounds of base closings and realignments since 1987, with the number of active duty military in the region dropping 41 percent over the period, compared to only 21 percent for the rest of the country. More than half the drop in reserve and National Guard forces since 1987 happened in the Northeast-Midwest region. Now as the nation prepares for another round of closings and realignments, the Northeast-Midwest accounts for just more than 10 percent of the U.S.-based active duty military personnel, although the region holds almost 40 percent of the nation's population and accounts for more than 40 percent of its annual economic output. The region accounts for less than a quarter of all Defense Department employment in the United States. With increased attention to the military's role in defending the homeland and responding to terrorist threats, it is clear that the Northeast-Midwest region needs a strong military presence. BRAC 2005 must not further erode the limited defense presence now in the region.

Data Sources and Notes

Defense Department Personnel: The data in this report regarding active duty military and civilian Defense Department personnel are as of September 30, 2002 and 1987, and they come from *Distribution of Personnel by State and Selected Location (M02)*, produced by the Defense Department's Directorate for Information Operations and Reports. U.S. levels exclude personnel in Puerto Rico and the territories, as well as those afloat or in foreign countries. In some cases, especially those pertaining to metropolitan areas, military departments may report personnel by parent installation or assigned location rather than their operating location. Different branches of the armed forces may differ in their reporting practices for personnel in transit or transition, as well as personnel on temporary duty.

Data on reserves and National Guard also are for personnel levels as of September 30, 2002 and 1987, and they come from *Atlas/Data Abstract for the United States and Selected Areas* (fiscal years 1987 and 2002) produced by the Defense Department's Directorate for Information Operations and Reports. The atlas/data abstract also includes numbers for active duty military and civilian Defense Department personnel, which are comparable to the data found in *Distribution of Personnel by State and Selected Location (M02)*.

Population and Federal Spending: State and regional population data, used to identify concentrations of military personnel, are estimates from late 2004 by the U.S. Census Bureau for state populations as of July 1, 2002. Data on shares of Defense Department and other federal spending for fiscal 2003 also come from the Census Bureau.

Major Military Installations: Data regarding current major military installations are for the Defense Department's physical plant as of October 1, 2002, and they come from *Base Structure Report (A Summary of DoD's Real Property Inventory): Fiscal Year 2003 Baseline*, produced by the Office of the Deputy Undersecretary of Defense (Installations & Environment). The *Base Structure Report* catalogs sites of more than ten acres in size and with plant replacement values of more than $10 million. The Defense Department compiles personnel counts for this inventory report from a variety of sources and includes in them both military and civilian personnel of the Defense Department, as well as personnel authorized for a site but not employed by the Defense Department. The tallies of personnel in the inventory differ significantly from those found in the Defense Department's report on *Distribution of Personnel by State and Selected Location* and its *Atlas/Data Abstract for the United States and Selected Areas*. (See Table 14.) The Northeast-Midwest Institute used the inventory data on personnel in order to identify 300 major installations from those listed in the *Base Structure Report*.

Previous Base Closings: Data on closings from previous BRAC rounds come from the Defense Department's *Report Required by Section 2912 of the Defense Base Closure and Realignment Act of 1990, as amended through the National Defense Authorization Act for Fiscal Year 2003*, March 2004. That Defense Department report does not identify the criteria used to designate base closings as major, however the report does describe major bases as ones "sited on large installations that provide the variety of support functions [that] forces need."

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Table 1. Change in U.S.-based Active Duty Military and Total Defense Department Personnel, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Change in Active Duty Military 1987-2002	Percent Change in Active Duty Military 1987-2002	Rank[1] for Percent Drop in Active Duty Military	Change in Total DoD Personnel[3] 1987-2002	Percent Change in Total DoD 1987-2002	Rank[2] for Percent Drop in Total DoD
New England						
Connecticut	[illegible]	-41.3	[illegible]	-11,299	-40.0	10
Maine	[illegible]	[illegible]	[illegible]	-10,704	-40.6	9
Massachusetts	[illegible]	[illegible]	[illegible]	-30,487	-49.1	4
New Hampshire	[illegible]	[illegible]	[illegible]	-7,072	-51.9	1
Rhode Island	[illegible]	-24.6	26	-4,767	-26.7	26
Vermont	[illegible]	-10.3	41	-1,499	-21.9	35
Total	[illegible]	-58.4	[illegible]	-65,828	-42.5	
Mid-Atlantic						
Delaware	[illegible]	[illegible]	[illegible]	-3,644	-24.1	28
Maryland	[illegible]	[illegible]	37	-25,582	-22.4	34
New Jersey	[illegible]	-67.9	6	-43,695	-50.4	2
New York	[illegible]	-22.8	29	-57,727	-42.1	8
Pennsylvania	[illegible]	-53.1	8	-61,420	-44.3	5
Total	[illegible]	-30.6	[illegible]	-192,068	-39.1	
Midwest						
Illinois	[illegible]	[illegible]	15	-39,468	-34.4	14
Indiana	[illegible]	[illegible]	[illegible]	-26,201	-43.4	6
Iowa	[illegible]	-17.5	NA	-5,446	-23.5	32
Michigan	[illegible]	-87.4	[illegible]	-34,640	-49.2	3
Minnesota	[illegible]	-22.1	30	-10,262	-28.2	23
Ohio	[illegible]	-41.3	13	-38,877	-35.9	13
Wisconsin	[illegible]	-39.8	16	-10,921	-29.4	20
Total	[illegible]	-46.6	[illegible]	-165,815	-36.8	
South						
Alabama	[illegible]	-52.3	[illegible]	-36,026	-37.0	12
Arkansas	[illegible]	-50.4	10	-12,466	-33.5	16
District of Columbia	[illegible]	[illegible]	Not rated	-5,372	-12.6	Not rated
Florida	[illegible]	-26.3	25	-36,185	-21.1	36
Georgia	[illegible]	[illegible]	NA	-10,722	-7.4	48
Kentucky	[illegible]	-13.0	[illegible]	-18,789	-23.9	29
Louisiana	[illegible]	-34.5	17	-15,848	-23.7	31
Mississippi	[illegible]	-19.8	32	-10,662	-19.6	40
North Carolina	[illegible]	-20.5	46	-6,889	-4.6	50
Oklahoma	[illegible]	-23.1	28	-25,789	-28.1	24
South Carolina	[illegible]	-15.0	35	-27,194	-27.6	25
Tennessee	[illegible]	-75.8	4	-21,188	-38.2	11
Texas	[illegible]	-14.8	36	-59,756	-20.5	38
Virginia	[illegible]	[illegible]	44	-47,270	-18.6	42
West Virginia	[illegible]	-32.9	NA	-2,191	-14.1	46
Total	[illegible]	[illegible]	[illegible]	-336,347	-20.4	

Table 1. Change in U.S.-based Active Duty Military and Total Defense Department Personnel, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Change in Active Duty Military 1987-2002	Percent Change in Active Duty Military 1987-2002	Rank[1] for Percent Drop in Active Duty Military	Change in Total DoD Personnel[3] 1987-2002	Percent Change in Total DoD 1987-2002	Rank[2] for Percent Drop in Total DoD
West						
Alaska	[illegible]	[illegible]	[illegible]	-8,004	-23.7	30
Arizona	[illegible]	[illegible]	[illegible]	-7,439	-13.3	47
California	[illegible]	[illegible]	[illegible]	-200,331	-42.2	7
Colorado	[illegible]	[illegible]	[illegible]	-16,119	-21.0	37
Hawaii	[illegible]	[illegible]	[illegible]	-15,907	-20.3	39
Idaho	[illegible]	[illegible]	[illegible]	-2,604	-17.1	43
Kansas	[illegible]	[illegible]	[illegible]	-15,382	-29.4	21
Missouri	[illegible]	[illegible]	NA	-24,407	-31.6	18
Montana	[illegible]	[illegible]	[illegible]	-2,468	-18.7	41
Nebraska	[illegible]	[illegible]	[illegible]	-10,334	-34.2	15
Nevada	[illegible]	[illegible]	[illegible]	-1,074	-5.9	49
New Mexico	[illegible]	[illegible]	[illegible]	-11,895	-31.5	19
North Dakota	[illegible]	[illegible]	[illegible]	-5,900	-28.7	22
Oregon	[illegible]	[illegible]	[illegible]	-5,302	-22.5	33
South Dakota	[illegible]	[illegible]	[illegible]	-5,138	-33.0	17
Utah	[illegible]	[illegible]	[illegible]	-11,522	-25.5	27
Washington	[illegible]	[illegible]	[illegible]	-17,903	-16.5	44
Wyoming	[illegible]	[illegible]	[illegible]	-1,523	-16.5	45
Total	[illegible]	[illegible]		-363,252	-30.6	
Northeast	[illegible]	[illegible]		-257,896	-39.9	
Midwest	[illegible]	[illegible]		-165,815	-36.8	
Northeast and Midwest	[illegible]	[illegible]		-423,711	-38.6	
South	[illegible]	[illegible]		-336,347	-20.4	
West	[illegible]	[illegible]		-363,252	-30.6	
South and West	[illegible]	[illegible]		-699,599	-24.7	
U.S. Total[4]	[illegible]	[illegible]		-1,123,310	-28.6	

[1]Lists change from September 30, 1987, to September 30, 2002, in Defense Department active duty military personnel in the United States. The personnel data do not include individuals in the reserves or National Guard, or personnel afloat. In some cases, especially those pertaining to metropolitan areas, military departments may report personnel by parent installation or assigned location rather than their operating location. Different departments of the armed forces may differ in their reporting practices for personnel in transit or transition, as well as personnel on temporary duty.
[2]Rankings exclude the District of Columbia and, in the case of active duty military personnel, any states which experienced an increase rather than a decrease from 1987 to 2002.
[3]Lists change from September 30, 1987, to September 30, 2002, in Defense Department personnel in the United States for active duty military, reserve and National Guard forces, and civilian employees.
[4]U.S. totals exclude foreign-based personnel, as well as personnel in Puerto Rico and the territories.

Source: Northeast-Midwest Institute calculations based on data for active duty military and Defense Department civilian employees from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002, and based on data for reserves and National Guard from Department of Defense, Directorate for Information Operations and Reports, *Atlas/Data Abstract for the United States and Selected Areas*, fiscal years 1987 and 2002.

Table 2. Shares of U.S.-based Active Duty Military, Total Defense Department Personnel, and Population, 2002

Northeast-Midwest Institute, April 2005

State or Region	Percent of Population[1]	Active Duty Military[2]	Percent of Active Duty Military	Total Defense Dept. Personnel[3]	Percent of Total Defense Dept. Personnel
New England					
Connecticut	1.2	[illegible]	[illegible]	16,923	0.6
Maine	0.4	[illegible]	[illegible]	15,681	0.6
Massachusetts	2.2	[illegible]	[illegible]	31,542	1.1
New Hampshire	0.4	[illegible]	[illegible]	6,566	0.2
Rhode Island	0.4	[illegible]	[illegible]	13,057	0.5
Vermont	0.2	[illegible]	[illegible]	5,358	0.2
Total	4.9	[illegible]	[illegible]	89,127	3.2
Mid-Atlantic					
Delaware	0.3	[illegible]	[illegible]	11,452	0.4
Maryland	1.9	[illegible]	[illegible]	88,458	3.1
New Jersey	3.0	[illegible]	[illegible]	43,054	1.5
New York	6.6	[illegible]	[illegible]	79,436	2.8
Pennsylvania	4.3	[illegible]	[illegible]	77,352	2.8
Total	16.1	[illegible]	[illegible]	299,752	10.7
Midwest					
Illinois	4.4	[illegible]	[illegible]	75,413	2.7
Indiana	2.1	[illegible]	[illegible]	34,134	1.2
Iowa	1.0	[illegible]	[illegible]	17,749	0.6
Michigan	3.5	[illegible]	[illegible]	35,738	1.3
Minnesota	1.7	[illegible]	[illegible]	26,084	0.9
Ohio	4.0	[illegible]	[illegible]	69,333	2.5
Wisconsin	1.9	[illegible]	[illegible]	26,184	0.9
Total	18.6	[illegible]	[illegible]	284,635	10.1
Northeast	21.0	[illegible]	[illegible]	388,879	13.8
Midwest	18.6	[illegible]	[illegible]	284,635	10.1
Northeast and Midwest	39.6	[illegible]	[illegible]	673,514	24.0
South	33.7	[illegible]	[illegible]	1,314,088	46.7
West	26.7	[illegible]	[illegible]	823,352	29.3
South and West	60.4	[illegible]	[illegible]	2,137,440	76.0
U.S. Total[4]	100.0	1,045,067	100.0	2,810,954	100.0

[1]Based on population estimates for July 1, 2002, as of late 2004.
[2]Counts the Defense Department active duty military personnel in the United States as of September 30, 2002. The personnel data do not include individuals in the reserves or National Guard, or personnel afloat. In some cases, especially those pertaining to metropolitan areas, military departments may report personnel by parent installation or assigned location rather than their operating location. Different departments of the armed forces may differ in their reporting practices for personnel in transit or transition, as well as personnel on temporary duty.
[3]Counts the Defense Department personnel in the United States for active duty military, reserve and National Guard forces, and civilian employees as of September 30, 2002.
[4]U.S. totals exclude foreign-based personnel, as well as personnel in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data for active duty military and Defense Department civilian employees from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002, and based on data for reserves and National Guard from Department of Defense, Directorate for Information Operations and Reports, *Atlas/Data Abstract for the United States and Selected Areas*, fiscal years 1987 and 2002.

Table 3. Shares of U.S.-based Reserves & National Guard, Civilian Defense Department Employees, and Population, 2002

Northeast-Midwest Institute, April 2005

State or Region	Percent of Population[1]	Reserves & National Guard[2]	Percent of Reserves & National Guard	Civilian Defense Dept.[3]	Percent of Civilian Defense Dept.
New England					
Connecticut	1.2	10,167	0.9	2,497	0.4
Maine	0.4	[illegible]	[illegible]	5,791	0.9
Massachusetts	2.2	[illegible]	[illegible]	6,829	1.1
New Hampshire	0.4	[illegible]	[illegible]	1,051	0.2
Rhode Island	0.4	[illegible]	[illegible]	4,346	0.7
Vermont	0.2	[illegible]	[illegible]	567	0.1
Total	4.9	[illegible]	[illegible]	21,081	3.4
Mid-Atlantic					
Delaware	0.3	6,124	0.5	1,429	0.2
Maryland	1.9	25,440	2.2	32,090	5.1
New Jersey	3.0	22,805	2.0	13,943	2.2
New York	6.6	47,334	4.2	11,220	1.8
Pennsylvania	4.3	49,334	4.3	24,920	4.0
Total	16.1	151,037	13.3	83,602	13.3
Midwest					
Illinois	4.4	[illegible]	[illegible]	12,780	2.0
Indiana	2.1	[illegible]	[illegible]	8,719	1.4
Iowa	1.0	[illegible]	[illegible]	1,546	0.2
Michigan	3.5	[illegible]	[illegible]	8,038	1.3
Minnesota	1.7	22,806	[illegible]	2,576	0.4
Ohio	4.0	[illegible]	[illegible]	22,080	3.5
Wisconsin	1.9	[illegible]	[illegible]	3,074	0.5
Total	18.6	189,992	16.7	58,813	9.4
Northeast	21.0	206,367	18.1	104,683	16.7
Midwest	18.6	189,992	16.7	58,813	9.4
Northeast and Midwest	39.6	396,359	34.8	163,496	26.0
South	33.7	442,702	38.9	292,610	46.6
West	26.7	298,777	26.3	171,943	27.4
South and West	60.4	741,479	65.2	464,553	74.0
U.S. Total[4]	100.0	1,137,838	100.0	628,049	100.0

[1]Based on population estimates for July 1, 2002, as of late 2004.
[2]Counts U.S.-based reserve personnel of the Armed Forces, including the National Guard, as of September 30, 2002.
[3]Counts the Defense Department civilian personnel in the United States as of September 30, 2002.
[4]U.S. totals exclude foreign-based personnel, as well as personnel in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data for active duty military and Defense Department civilian employees from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002, and based on data for reserves and National Guard from Department of Defense, Directorate for Information Operations and Reports, *Atlas/Data Abstract for the United States and Selected Areas*, fiscal years 1987 and 2002.

Table 4. Ranks for U.S.-based Active Duty Military, Total Defense Department Personnel, and U.S. Population, 2002

Northeast-Midwest Institute, April 2005

State or Region	Active Duty Military[1]	Rank for Active Duty Military	Total Defense Dept.[1]	Rank for Total Defense Dept.	Population[3]	Rank for Pop.
New England						
Connecticut	4,239	32	[illegible]	3[illegible]	3,458,587	29
Maine	2,689	39	[illegible]	4[illegible]	1,294,894	40
Massachusetts	2,427	41	[illegible]	2[illegible]	6,421,800	13
New Hampshire	326	49	[illegible]	4[illegible]	1,274,405	41
Rhode Island	2,974	38	[illegible]	4[illegible]	1,068,326	43
Vermont	61	50	[illegible]	5[illegible]	616,408	49
Total	12,716		89,127	[illegible]	14,134,420	
Mid-Atlantic						
Delaware	3,899	33	11,452	4[illegible]	805,945	45
Maryland	30,928	11	88,458	[illegible]	5,450,525	18
New Jersey	6,306	28	43,054	2[illegible]	8,575,252	9
New York	20,882	16	79,436	[illegible]	19,134,293	3
Pennsylvania	3,098	37	77,352	1[illegible]	12,328,827	6
Total	65,113		299,752	[illegible]	46,294,842	
Midwest						
Illinois	25,036	13	[illegible]	[illegible]	12,586,447	5
Indiana	1,041	43	[illegible]	[illegible]	6,156,913	14
Iowa	447	48	[illegible]	3[illegible]	2,935,840	30
Michigan	1,173	42	[illegible]	2[illegible]	10,043,221	8
Minnesota	702	45	[illegible]	3[illegible]	5,024,791	21
Ohio	6,899	27	[illegible]	1[illegible]	11,408,699	7
Wisconsin	532	47	[illegible]	3[illegible]	5,439,692	20
Total	35,830		284,635	[illegible]	53,595,603	
Northeast	77,829		388,879	[illegible]	60,429,262	
Midwest	35,830		284,635	[illegible]	53,595,603	
Northeast and Midwest	113,659		673,514	[illegible]	114,024,865	
South	578,776		1,314,088	[illegible]	96,941,498	
West	352,632		823,352	[illegible]	77,007,561	
South and West	931,408		2,137,440	[illegible]	173,949,059	
U.S. Total[4]	1,045,067		2,810,954	[illegible]	287,973,924	

[1]Counts the Defense Department active duty military personnel in the United States as of September 30, 2002. The personnel data do not include individuals in the reserves or National Guard, or personnel afloat. In some cases, especially those pertaining to metropolitan areas, military departments may report personnel by parent installation or assigned location rather than their operating location. Different departments of the armed forces may differ in their reporting practices for personnel in transit or transition, as well as personnel on temporary duty.
[2]Counts the Defense Department personnel in the United States for active duty military, reserve and National Guard forces, and civilian employees as of September 30, 2002.
[3]Population estimates for July 1, 2002, as of late 2004.
[4]U.S. totals exclude foreign-based Defense Department personnel, as well as individuals in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data for active duty military and Defense Department civilian employees from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002, and based on data for reserves and National Guard from Department of Defense, Directorate for Information Operations and Reports, *Atlas/Data Abstract for the United States and Selected Areas*, fiscal years 1987 and 2002.

Table 5. Ranks for U.S.-based Reserves & National Guard, Civilian Defense Dept. Employees, and U.S. Population, 2002

Northeast-Midwest Institute, April 2005

State or Region	Reserves & National Guard[1]	Rank for Reserves & National Guard	Civilian Defense Dept.[2]	Rank for Civilian Defense Dept.	Population[3]	Rank for Pop.
New England						
Connecticut	10,187	36	2,497	39	3,458,587	29
Maine	7,201	39	3,78[illegible]	2[illegible]	1,294,894	40
Massachusetts	22,286	23	1,62[illegible]	27	6,421,800	13
New Hampshire	5,189	48	1,05[illegible]	4[illegible]	1,274,405	41
Rhode Island	5,737	45	4,34[illegible]	3[illegible]	1,068,326	43
Vermont	4,730	49	567	5[illegible]	616,408	49
Total	55,330		21,08[illegible]		14,134,420	
Mid-Atlantic						
Delaware	6,124	42	1,929	4[illegible]	805,945	45
Maryland	25,440	17	32,090	[illegible]	5,450,525	18
New Jersey	22,805	21	13,943	15	8,575,252	9
New York	47,334	5	11,220	17	19,134,293	3
Pennsylvania	49,334	4	24,920	[illegible]	12,328,827	6
Total	151,037		83,502	[illegible]	46,294,842	
Midwest						
Illinois	37,597	9	2,78[illegible]	[illegible]	12,586,447	5
Indiana	24,374	18	[illegible]	[illegible]	6,156,913	14
Iowa	15,756	30	1,51[illegible]	[illegible]	2,935,840	30
Michigan	26,527	15	5,03[illegible]	[illegible]	10,043,221	8
Minnesota	22,806	20	2,57[illegible]	[illegible]	5,024,791	21
Ohio	40,354	6	22,08[illegible]	[illegible]	11,408,699	7
Wisconsin	22,578	22	3,07[illegible]	[illegible]	5,439,692	20
Total	189,992		58,81[illegible]	[illegible]	53,595,603	
Northeast	206,367		104,68[illegible]	[illegible]	60,429,262	
Midwest	189,992		58,81[illegible]	[illegible]	53,595,603	
Northeast and Midwest	396,359		163,49[illegible]	[illegible]	114,024,865	
South	442,702		292,61[illegible]	[illegible]	96,941,498	
West	298,777		171,94[illegible]	[illegible]	77,007,561	
South and West	741,479		464,56[illegible]	[illegible]	173,949,059	
U.S. Total[4]	1,137,838		628,049	[illegible]	287,973,924	

[1]Counts U.S.-based reserve personnel of the Armed Forces, including the National Guard, as of September 30, 2002.
[2]Counts the Defense Department civilian personnel in the United States as of September 30, 2002.
[3]Population estimates for July 1, 2002, as of late 2004.
[4]U.S. totals exclude foreign-based Defense Department personnel, as well as individuals in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data for active duty military and Defense Department civilian employees from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002, and based on data for reserves and National Guard from Department of Defense, Directorate for Information Operations and Reports, *Atlas/Data Abstract for the United States and Selected Areas*, fiscal years 1987 and 2002.

Table 6. Northeast-Midwest Sites in Top 300 for Defense Dept. by Size, Value, and Personnel (Ranked by Personnel), 2002

Northeast-Midwest Institute, April 2005

Sites[1]	No.	Branch	Acres	Plant Replacement Value[2] (in millions)	Total Personnel On Site[3]	Rank for Total Personnel
New England						
Connecticut	1					
NAVSUBASE New London CT		Navy Active	1,272	$1,212.3	6,487	75
Maine	2					
NSY Portsmouth NH		Navy Active	273	$525.0	4,640	107
NAS Brunswick		Navy Active	15,864	$572.7	3,720	127
Massachusetts	5					
Hanscom AFB		AF Active	846	$935.6	3,468	131
Westover ARB		AF Reserve	2,585	$667.3	2,780	150
Devens Reserve Forces Tng Area		Army Reserve	5,226	$342.5	1,949	190
Otis ANG Base		Air Natl Guard	4,069	$578.8	1,348	229
Barnes Municipal Airport ANG		Air Natl Guard	186	$97.8	976	295
New Hampshire	1					
Pease AFB		AF Active	2,787	$761.4	1,021	279
Rhode Island	2					
NAVUNSEAWARCENDIV Newport RI		Navy Active	60	$318.7	2,770	151
Quonset State Airport ANG		Air Natl Guard	94	$94.8	979	294
Vermont	1					
Burlington Intl Airport (ANG)		Air Natl Guard	231	$98.6	1,007	285
Mid-Atlantic						
Delaware	2					
Dover AFB		AF Active	3,824	$1,309.8	6,175	79
New Castle County Airport		Air Natl Guard	79	$72.4	1,115	259
Maryland	11					
NAVAIRWARCENACDIV Patuxent		Navy Active	13,812	$2,106.3	10,246	40
Andrews AFB		AF Active	4,996	$1,992.2	9,318	44
Fort George G Meade		Army Active	5,067	$1,742.3	8,857	48
Aberdeen Proving Ground		Army Active	72,406	$2,719.2	8,714	50
USNA Annapolis		Navy Active	2,001	$1,096.8	6,417	76
NATNAVMEDCEN Bethesda MD		Navy Active	239	$581.0	5,754	84
Fort Detrick		Army Active	1,153	$853.4	2,751	153
NAVSURFWARCENDIV Indian Head		Navy Active	3,406	$1,164.7	2,735	154
NAVSURFWARCEN MD		Navy Active	186	$290.8	1,852	195
Martin State Airport ANG		Air Natl Guard	175	$83.2	1,671	206
U.S.A. Adelphi Laboratory Ctr		Army Active	207	$239.4	994	290

Table 6. Northeast-Midwest Sites in Top 300 for Defense Dept. by Size, Value, and Personnel (Ranked by Personnel), 2002

Northeast-Midwest Institute, April 2005

Sites[1]	No.	Branch	Acres	Plant Replacement Value[2] (in millions)	Total Personnel On Site[3]	Rank for Total Personnel
New Jersey	7					
McGuire AFB		AF Active	3,880	$2,493.1	9,242	46
Fort Monmouth Main Post		Army Active	1,149	$1,019.5	4,836	100
NAES Lakehurst		Navy Active	7,430	$932.4	3,131	137
Picatinny Arsenal		Army Active	6,493	$1,189.1	2,905	147
Fort Dix		Army Reserve	30,943	$2,267.3	2,535	160
WPNSUPPFAC Yorktown Det Earle		Navy Active	11,851	$1,178.6	1,327	231
Atlantic City Intl Airport		Air Natl Guard	296	$101.7	1,002	287
New York	6					
Fort Drum		Army Active	107,648	$2,869.9	12,538	24
West Point Mil Reservation		Army Active	16,081	$2,355.8	3,441	133
Stewart Intl Airport		Air Natl Guard	268	$336.8	2,300	173
Niagara Falls IAP-ARS		AF Reserve	985	$317.5	2,224	177
Schenectady Airport ANG		Air Natl Guard	122	$101.9	1,355	225
Hancock Field ANG		Air Natl Guard	356	$156.3	1,177	250
Pennsylvania	9					
Tobyhanna Army Depot		Army Active	1,296	$602.8	3,116	138
Willow Grove ARS		AF Reserve	221	$184.1	2,344	171
NAVSUPPACT Mechanicsburg		Navy Active	992	$1,018.3	1,790	199
NAS Willow Grove		Navy Reserve	967	$396.5	1,771	201
NAVSURFWARCEN SHIPSYSENGSTA		Navy Active	271	$528.8	1,670	207
Pittsburgh IAP-ARS		AF Reserve	181	$126.8	1,346	230
Fort Indiantown Gap ANG Station		Air Natl Guard	131	$33.7	1,309	232
Letterkenny Army Depot		Army Active	19,012	$1,305.1	1,267	239
Harrisburg IAP		Air Natl Guard	39	$70.4	1,111	262
Midwest						
Illinois	8					
Scott AFB		AF Active	3,545	$1,989.4	10,268	38
NTC Great Lakes IL		Navy Active	1,826	$2,148.9	4,245	116
Rock Island Arsenal		Army Active	893	$1,217.7	3,811	126
Sheridan Reserve Complex		Army Reserve	90	$89.9	1,904	191
Naval Hospital Great Lakes		Navy Active	85	$313.2	1,714	204
Greater Peoria Regional Airport ANG		Air Natl Guard	339	$134.2	1,302	233
Springfield (TS Cp Lincoln)		Army Guard	160	$83.3	1,293	235
Capital Municipal Airport ANG		Air Natl Guard	91	$75.4	1,144	255
Indiana	4					
NAVSURFWARCENDIV Crane		Navy Active	62,929	$2,330.8	3,457	132
Fort Ben Harrison USARC		Army Reserve	138	$48.4	1,396	223
Hulman Regional Airport		Air Natl Guard	279	$94.4	1,021	279
Fort Wayne Intl Airport		Air Natl Guard	166	$98.5	991	292

Table 6. Northeast-Midwest Sites in Top 300 for Defense Dept. by Size, Value, and Personnel (Ranked by Personnel), 2002

Northeast-Midwest Institute, April 2005

Sites[1]	No.	Branch	Acres	Plant Replacement Value[2] (in millions)	Total Personnel On Site[3]	Rank for Total Personnel
Iowa	2					
Des Moines Reserve Complex		Army Reserve	40	32.7	1,008	284
Sioux Gateway Airport (ANG)		Air Natl Guard	288	95.5	999	288
Michigan	2					
Detroit Arsenal		Army Active	170	$384.9	3,423	134
Selfridge ANG Base		Air Natl Guard	3,070	$743.0	2,975	143
Minnesota	2					
Minneapolis-St Paul IAP-ARS		AF Reserve	246	$264.3	2,629	156
Fort Snelling USARC/AMSA		Army Reserve	68	$44.6	1,354	226
Ohio						
Wright Patterson AFB	7	AF Active	8,145	$5,253.8	17,766	14
Youngstown-Warren Regional Airport ARS		AF Reserve	658	$163.8	1,628	210
Rickenbacker ANG Base		Air Natl Guard	1,097	$272.3	1,352	227
83D Div Memorial USARC/AMSA		Army Reserve	19	$25.4	1,141	256
Springfield Beckley Municipal Airport		Air Natl Guard	114	$91.6	1,059	268
Toledo Express Airport ANG		Air Natl Guard	135	$77.8	1,048	270
Mansfield Lahm Airport ANG		Air Natl Guard	224	$67.7	1,007	285
Wisconsin	4					
Fort McCoy		Army Reserve	127,730	$1,571.6	2,578	158
W. Silver Spring Complex		Army Reserve	127	$63.1	1,887	192
Gen Mitchell IAP-ARS		AF Reserve	103	$122.6	1,549	213
Truax Field		Air Natl Guard	154	$195.5	1,036	275

[1]Lists Northeast-Midwest sites from the Defense Department's real property inventory (as of October 1, 2002) consisting of more than ten acres, having plant replacement values of more than $10 million, and having 970 or more personnel, including on-site individuals with the reserves and National Guard and on-site individuals not employed by the Defense Department. Uses names and abbreviations from the Defense Department. In most cases where the parent unit for a site is located in another state, the inventory data for that site reflects information relevant only to the facilities at that site and not the parent unit. The Defense Department made exceptions to this approach regarding sites and parent units for Air Force strategic missile sites, in which cases the data from the sites were rolled up and counted for one of seven parent installations.
[2]Plant replacement values are for the estimated costs of replacing facilities and supporting infrastructure at the time that the inventory was compiled.
[3]The Defense Department compiled data on personnel from a variety of sources. Personnel includes military and civilian Defense Department personnel from all branches of service, as well as civilian personnel at the site but not employed by the Defense Department. Military personnel includes individuals in the reserves and the National Guard.

Source: Northeast-Midwest Institute compilations and rankings based on data from the Department of Defense, Office of the Deputy Undersecretary of Defense (Installations & Environment), *Base Structure Report (A Summary of DoD's Real Property Inventory): Fiscal Year 2003 Baseline* (no publication date).

Table 7. Shares of 1987 U.S.-based Active Duty Military and Total Defense Dept. Personnel, and Shares of Drop 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Percent of Active Duty Military 1987	Percent of Drop in Active Duty Military 1987-2002	Percent of Total U.S.-based Defense Dept.[3] 1987	Percent of Drop in Total U.S.-based Defense Dept.[2] 1987-2002
New England				
Connecticut	[illegible]	[illegible]	0.7	1.0
Maine	[illegible]	[illegible]	0.7	1.0
Massachusetts	[illegible]	[illegible]	1.6	2.7
New Hampshire	[illegible]	[illegible]	0.3	0.6
Rhode Island	[illegible]	[illegible]	0.5	0.4
Vermont	[illegible]	[illegible]	0.2	0.1
Total	[illegible]	[illegible]	3.9	5.9
Mid-Atlantic				
Delaware	[illegible]	[illegible]	0.4	0.3
Maryland	[illegible]	[illegible]	2.9	2.3
New Jersey	[illegible]	[illegible]	2.2	3.9
New York	[illegible]	[illegible]	3.5	5.1
Pennsylvania	[illegible]	[illegible]	3.5	5.5
Total	[illegible]	[illegible]	12.5	17.1
Midwest				
Illinois	[illegible]	[illegible]	2.9	3.5
Indiana	[illegible]	[illegible]	1.5	2.3
Iowa	[illegible]	[illegible]	0.6	0.5
Michigan	[illegible]	[illegible]	1.8	3.1
Minnesota	[illegible]	[illegible]	0.9	0.9
Ohio	[illegible]	[illegible]	2.8	3.5
Wisconsin	[illegible]	[illegible]	0.9	1.0
Total	[illegible]	[illegible]	11.4	14.8
Northeast	[illegible]	[illegible]	16.4	23.0
Midwest	[illegible]	[illegible]	11.4	14.8
Northeast and Midwest	[illegible]	[illegible]	27.9	37.7
South	[illegible]	[illegible]	42.0	29.9
West	[illegible]	[illegible]	30.2	32.3
South and West	[illegible]	[illegible]	72.1	62.3
U.S. Total[4]	100.0	100.0	100.0	100.0

[1]Shows the percentage of U.S.-based Defense Department active duty military personnel as of September 30, 1987. The personnel data do not include individuals in the reserves or National Guard, or personnel afloat. In some cases, especially those pertaining to metropolitan areas, military departments may report personnel by parent installation or assigned location rather than their operating location. Different departments of the armed forces may differ in their reporting practices for personnel in transit or transition, as well as personnel on temporary duty.
[2]Takes the state or region's decline in U.S.-based Defense Department personnel from September 30, 1987, to September 30, 2002, as a percentage of the total drop for the United States. Negative levels indicate increases, rather than decreases, in personnel.
[3]Shows the percentage of U.S.-based Defense Department personnel for active duty military, reserve and National Guard forces, and civilian employees as of September 30, 2002.
[4]U.S. totals exclude foreign-based Defense Department personnel, as well as individuals in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data for active duty military and Defense Department civilian employees from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002, and based on data for reserves and National Guard from Department of Defense, Directorate for Information Operations and Reports, *Atlas/Data Abstract for the United States and Selected Areas*, fiscal years 1987 and 2002.

Table 8. Shares of 1987 U.S.-based Reserves & National Guard and Civilian Defense Personnel, and Shares of Drop 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Percent of Reserves & National Guard[1] 1987	Percent of Drop in Reserves & National Guard[1] 1987-2002	Percent of Civilian Defense Dept.[3] 1987	Percent of Drop in Total Civilian Defense Dept.[2] 1987-2002
New England				
Connecticut	[illegible]	[illegible]	0.5	0.7
Maine	0.6	0.6	1.1	1.4
Massachusetts	2.6	[illegible]	1.2	1.5
New Hampshire	0.5	0.6	0.2	0.1
Rhode Island	0.6	0.8	0.5	0.1
Vermont	0.4	0.3	0.1	0.0
Total	5.7	7.9	3.5	3.8
Mid-Atlantic				
Delaware	0.5	0.5	0.2	0.1
Maryland	2.2	2.1	4.4	3.2
New Jersey	2.4	3.5	2.9	4.2
New York	5.4	9.8	2.0	2.4
Pennsylvania	4.7	5.8	5.9	9.2
Total	15.7	21.8	15.4	19.1
Midwest				
Illinois	3.5	2.1	2.3	2.6
Indiana	2.4	3.2	1.6	1.8
Iowa	1.3	1.3	0.2	0.0
Michigan	3.1	4.9	1.3	1.4
Minnesota	2.1	2.2	0.3	0.1
Ohio	3.9	5.0	3.5	3.4
Wisconsin	2.2	2.3	0.3	0.1
Total	18.6	23.1	9.4	9.5
Northeast	21.4	29.7	18.9	22.9
Midwest	18.5	23.1	9.4	9.5
Northeast and Midwest	39.9	52.8	28.3	32.4
South	35.6	26.9	41.5	32.3
West	24.6	20.3	30.2	35.3
South and West	60.2	47.2	71.7	67.6
U.S. Total[4]	100.0	100.0	100.0	100.0

[1]Shows the percentage of U.S.-based Defense Department reserve personnel of the Armed Forces, including the National Guard, as of September 30, 1987.
[2]Takes the state or region's decline in U.S.-based Defense Department personnel from September 30, 1987, to September 30, 2002, as a percentage of the total drop for the United States. Negative levels indicate increases, rather than decreases, in personnel.
[3]Shows the percentage of U.S.-based Defense Department civilian personnel as of September 30, 1987.
[4]U.S. totals exclude foreign-based Defense Department personnel, as well as individuals in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data for active duty military and Defense Department civilian employees from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002, and based on data for reserves and National Guard from Department of Defense, Directorate for Information Operations and Reports, *Atlas/Data Abstract for the United States and Selected Areas*, fiscal years 1987 and 2002.

Table 9. Levels, Changes, and Ranks for U.S.-based Active Duty Military, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Active Duty Military[1] 1987	Percent of Active Duty Military 1987	Active Duty Military[1] 2002	Percent of Active Duty Military 2002	Change in Active Duty Military 1987-2002	Percent Change in Act. Duty Military 1987-2002	Rank for Percent Drop in Act. Duty Military
New England							
Connecticut	7,223	0.5	4,239	0.4	-2,984	-41.3	14
Maine	5,849	0.4	2,689	0.3	-3,160	-54.0	7
Massachusetts	9,355	0.7	2,427	0.2	-6,928	-74.1	5
New Hampshire	4,143	0.3	326	0.0	-3,817	-92.1	1
Rhode Island	3,941	0.3	2,974	0.3	-967	-24.5	26
Vermont	68	0.0	61	0.0	-7	-10.3	41
Total	30,579	2.2	12,716	1.2	-17,863	-58.4	
Mid-Atlantic							
Delaware	4,818	0.3	3,899	0.4	-919	-19.1	33
Maryland	35,726	2.6	30,928	3.0	-4,798	-13.4	37
New Jersey	19,673	1.4	6,306	0.6	-13,367	-67.9	6
New York	27,040	2.0	20,882	2.0	-6,158	-22.8	29
Pennsylvania	6,600	0.5	3,098	0.3	-3,502	-53.1	8
Total	93,857	6.8	65,113	6.2	-28,744	-30.6	
Midwest							
Illinois	37,250	2.7	25,036	2.4	-12,214	-32.8	19
Indiana	6,543	0.5	1,041	0.1	-5,502	-84.1	3
Iowa	380	0.0	447	0.0	67	17.6	NA
Michigan	9,300	0.7	1,173	0.1	-8,127	-87.4	2
Minnesota	901	0.1	702	0.1	-199	-22.1	30
Ohio	11,780	0.9	6,899	0.7	-4,881	-41.4	13
Wisconsin	884	0.1	532	0.1	-352	-39.8	16
Total	67,038	4.9	35,830	3.4	-31,208	-46.6	
South							
Alabama	23,825	1.7	11,354	1.1	-12,471	-52.3	9
Arkansas	9,793	0.7	4,855	0.5	-4,938	-50.4	10
District of Columbia	13,048	0.9	12,767	1.2	-281	-2.2	Not rated
Florida	75,713	5.5	55,815	5.3	-19,898	-26.3	25
Georgia	62,909	4.6	64,392	6.2	1,483	2.4	NA
Kentucky	39,196	2.8	34,081	3.3	-5,115	-13.0	38
Louisiana	25,249	1.8	16,541	1.6	-8,708	-34.5	17
Mississippi	17,470	1.3	14,005	1.3	-3,465	-19.8	32
North Carolina	94,786	6.9	94,296	9.0	-490	-0.5	46
Oklahoma	30,786	2.2	23,664	2.3	-7,122	-23.1	28
South Carolina	44,629	3.2	37,943	3.6	-6,686	-15.0	35
Tennessee	10,549	0.8	2,554	0.2	-7,995	-75.8	4
Texas	135,071	9.8	115,100	11.0	-19,971	-14.8	36
Virginia	99,950	7.3	90,851	8.7	-9,099	-9.1	44
West Virginia	420	0.0	558	0.1	138	32.9	NA
Total	683,394	49.6	578,776	55.4	-104,618	-15.3	

Table 9. Levels, Changes, and Ranks for U.S.-based Active Duty Military, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Active Duty Military[1] 1987	Percent of Active Duty Military 1987	Active Duty Military[1] 2002	Percent of Active Duty Military 2002	Change in Active Duty Military 1987-2002	Percent Change in Act. Duty Military 1987-2002	Rank for Percent Drop in Act. Duty Military
West							
Alaska	22,127	1.6	15,906	1.5	-6,221	-28.1	23
Arizona	24,880	1.8	22,448	2.1	-2,432	-9.8	43
California	206,495	15.0	123,948	11.9	-82,547	-40.0	15
Colorado	42,709	3.1	29,733	2.8	-12,976	-30.4	22
Hawaii	45,396	3.3	34,608	3.3	-10,788	-23.8	27
Idaho	5,877	0.4	4,251	0.4	-1,626	-27.7	24
Kansas	23,127	1.7	15,819	1.5	-7,308	-31.6	21
Missouri	15,691	1.1	16,119	1.5	428	2.7	NA
Montana	4,018	0.3	3,512	0.3	-506	-12.6	39
Nebraska	13,498	1.0	7,793	0.7	-5,705	-42.3	12
Nevada	9,955	0.7	8,461	0.8	-1,494	-15.0	34
New Mexico	16,567	1.2	11,254	1.1	-5,313	-32.1	20
North Dakota	11,245	0.8	7,465	0.7	-3,780	-33.6	18
Oregon	760	0.1	705	0.1	-55	-7.2	45
South Dakota	6,744	0.5	3,350	0.3	-3,394	-50.3	11
Utah	6,044	0.4	5,447	0.5	-597	-9.9	42
Washington	43,289	3.1	38,521	3.7	-4,768	-11.0	40
Wyoming	4,141	0.3	3,292	0.3	-849	-20.5	31
Total	502,563	36.5	352,632	33.7	-149,931	-29.8	
Northeast	124,436	9.0	77,829	7.4	-46,607	-37.5	
Midwest	67,038	4.9	35,830	3.4	-31,208	-46.6	
Northeast and Midwest	191,474	13.9	113,659	10.9	-77,815	-40.6	
South	683,394	49.6	578,776	55.4	-104,618	-15.3	
West	502,563	36.5	352,632	33.7	-149,931	-29.8	
South and West	1,185,957	86.1	931,408	89.1	-254,549	-21.5	
U.S. Total[2]	1,377,431	100.0	1,045,067	100.0	-332,364	-24.1	

[1]Counts Defense Department active duty military personnel in the United States as of September 30. The personnel data do not include individuals in the reserves or National Guard, or personnel afloat. In some cases, especially those pertaining to metropolitan areas, military departments may report personnel by parent installation or assigned location rather than their operating location. Different departments of the armed forces may differ in their reporting practices for personnel in transit or transition, as well as personnel on temporary duty.

[2]U.S. totals exclude foreign-based personnel, as well as personnel in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002.

Table 10. Levels, Changes, and Ranks for U.S.-based Reserves & National Guard, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Reserves &National Guard[1] 1987	Percent of Reserves & National Guard 1987	Reserves & National Guard[1] 2002	Percent of Reserves & National Guard 2002	Change in Reserves & National Guard 1987-2002	Percent Change in Reserves & Nat. Guard 1987-2002	Rank for Percent Drop in Reserves & Nat. Guard
New England							
Connecticut	16,109	1.0	10,187	0.9	-5,922	-36.8	8
Maine	9,913	0.6	7,201	0.6	-2,712	-27.4	25
Massachusetts	40,584	2.6	22,286	2.0	-18,298	-45.1	2
New Hampshire	7,969	0.5	5,189	0.5	-2,780	-34.9	11
Rhode Island	9,295	0.6	5,737	0.5	-3,558	-38.3	6
Vermont	6,148	0.4	4,730	0.4	-1,418	-23.1	32
Total	90,018	5.7	55,330	4.9	-34,688	-38.5	
Mid-Atlantic							
Delaware	8,371	0.5	6,124	0.5	-2,247	-26.8	27
Maryland	34,856	2.2	25,440	2.2	-9,416	-27.0	26
New Jersey	38,396	2.4	22,805	2.0	-15,591	-40.6	5
New York	90,639	5.7	47,334	4.2	-43,305	-47.8	1
Pennsylvania	74,832	4.7	49,334	4.3	-25,498	-34.1	12
Total	247,094	15.7	151,037	13.3	-96,057	-38.9	
Midwest							
Illinois	55,556	3.5	37,597	3.3	-17,959	-32.3	14
Indiana	38,589	2.4	24,374	2.1	-14,215	-36.8	7
Iowa	21,272	1.3	15,756	1.4	-5,516	-25.9	29
Michigan	48,186	3.1	26,527	2.3	-21,659	-44.9	3
Minnesota	32,561	2.1	22,806	2.0	-9,755	-30.0	18
Ohio	62,300	3.9	40,354	3.5	-21,946	-35.2	10
Wisconsin	32,885	2.1	22,578	2.0	-10,307	-31.3	15
Total	291,349	18.5	189,992	16.7	-101,357	-34.8	
Northeast	337,112	21.4	206,367	18.1	-130,745	-38.8	
Midwest	291,349	18.5	189,992	16.7	-101,357	-34.8	
Northeast and Midwest	628,461	39.8	396,359	34.8	-232,102	-36.9	
South	561,007	35.6	442,702	38.9	-118,305	-21.1	
West	388,037	24.6	298,777	26.3	-89,260	-23.0	
South and West	949,044	60.2	741,479	65.2	-207,565	-21.9	
U.S. Total[2]	1,577,505	100.0	1,137,838	100.0	-439,667	-27.9	

[1]Counts the U.S.-based Defense Department reserve personnel of the Armed Forces, including the National Guard, as of September 30.
[2]U.S. totals exclude foreign-based personnel, as well as personnel in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data for reserves and National Guard from Department of Defense, Directorate for Information Operations and Reports, *Atlas/Data Abstract for the United States and Selected Areas*, fiscal years 1987 and 2002.

Table 11. Levels, Changes, and Ranks for U.S.-based Civilian Personnel of the Defense Department, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Civilian Defense Dept.[1] 1987	Percent of Civilian 1987	Civilian Defense Dept.[1] 2002	Percent of Civilian 2002	Change in Civilian 1987-2002	Percent Change in Civilian 1987-2002	Rank for Percent Drop in Civilian
New England							
Connecticut	4,890	0.5	2,497	0.4	-2,393	-48.9	6
Maine	10,623	1.1	5,791	0.9	-4,832	-45.5	7
Massachusetts	12,090	1.2	6,829	1.1	-5,261	-43.5	9
New Hampshire	1,526	0.2	1,051	0.2	-475	-31.1	18
Rhode Island	4,588	0.5	4,346	0.7	-242	-5.3	45
Vermont	641	0.1	567	0.1	-74	-11.5	40
Total	34,358	3.5	21,081	3.4	-13,277	-38.6	
Mid-Atlantic							
Delaware	1,907	0.2	1,429	0.2	-478	-25.1	25
Maryland	43,458	4.4	32,090	5.1	-11,368	-26.2	23
New Jersey	28,680	2.9	13,943	2.2	-14,737	-51.4	5
New York	19,484	2.0	11,220	1.8	-8,264	-42.4	11
Pennsylvania	57,340	5.9	24,920	4.0	-32,420	-56.5	2
Total	150,869	15.4	83,602	13.3	-67,267	-44.6	
Midwest							
Illinois	22,075	2.3	12,780	2.0	-9,295	-42.1	12
Indiana	15,203	1.6	8,719	1.4	-6,484	-42.6	10
Iowa	1,543	0.2	1,546	0.2	3	0.2	NA
Michigan	12,892	1.3	8,038	1.3	-4,854	-37.7	14
Minnesota	2,884	0.3	2,576	0.4	-308	-10.7	41
Ohio	34,130	3.5	22,080	3.5	-12,050	-35.3	15
Wisconsin	3,336	0.3	3,074	0.5	-262	-7.9	43
Total	92,063	9.4	58,813	9.4	-33,250	-36.1	
Northeast	185,227	18.9	104,683	16.7	-80,544	-43.5	
Midwest	92,063	9.4	58,813	9.4	-33,250	-36.1	
Northeast and Midwest	277,290	28.3	163,496	26.0	-113,794	-41.0	
South	406,034	41.5	292,610	46.6	-113,424	-27.9	
West	296,004	30.2	171,943	27.4	-124,061	-41.9	
South and West	702,038	71.7	464,553	74.0	-237,485	-33.8	
U.S. Total[2]	979,328	100.0	628,049	100.0	-351,279	-35.9	

[1]Counts the Defense Department civilian personnel in the United States as of September 30.
[2]U.S. totals exclude foreign-based personnel, as well as personnel in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002.

Table 12. Levels, Changes, and Ranks for Total U.S.-based Defense Department Personnel, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Total[1] 1987	Percent of Total 1987	Total[1] 2002	Percent of Total 2002	Change in Total 1987-2002	Percent Changeln Total 1987-2002	Rank for Percent Drop in Total
New England							
Connecticut	28,222	0.7	16,923	0.6	-11,299	-40.0	10
Maine	26,385	0.7	15,681	0.6	-10,704	-40.6	9
Massachusetts	62,029	1.6	31,542	1.1	-30,487	-49.1	4
New Hampshire	13,638	0.3	6,566	0.2	-7,072	-51.9	1
Rhode Island	17,824	0.5	13,057	0.5	-4,767	-26.7	26
Vermont	6,857	0.2	5,358	0.2	-1,499	-21.9	35
Total	154,955	3.9	89,127	3.2	-65,828	-42.5	
Mid-Atlantic							
Delaware	15,096	0.4	11,452	0.4	-3,644	-24.1	28
Maryland	114,040	2.9	88,458	3.1	-25,582	-22.4	34
New Jersey	86,749	2.2	43,054	1.5	-43,695	-50.4	2
New York	137,163	3.5	79,436	2.8	-57,727	-42.1	8
Pennsylvania	138,772	3.5	77,352	2.8	-61,420	-44.3	5
Total	491,820	12.5	299,752	10.7	-192,068	-39.1	
Midwest							
Illinois	114,881	2.9	75,413	2.7	-39,468	-34.4	14
Indiana	60,335	1.5	34,134	1.2	-26,201	-43.4	6
Iowa	23,195	0.6	17,749	0.6	-5,446	-23.5	32
Michigan	70,378	1.8	35,738	1.3	-34,640	-49.2	3
Minnesota	36,346	0.9	26,084	0.9	-10,262	-28.2	23
Ohio	108,210	2.8	69,333	2.5	-38,877	-35.9	13
Wisconsin	37,105	0.9	26,184	0.9	-10,921	-29.4	20
Total	450,450	11.4	284,635	10.1	-165,815	-36.8	
South							
Alabama	97,415	2.5	61,389	2.2	-36,026	-37.0	12
Arkansas	37,183	0.9	24,717	0.9	-12,466	-33.5	16
District of Columbia	42,533	1.1	37,161	1.3	-5,372	-12.6	Not rated
Florida	171,235	4.4	135,050	4.8	-36,185	-21.1	36
Georgia	145,239	3.7	134,517	4.8	-10,722	-7.4	48
Kentucky	78,485	2.0	59,696	2.1	-18,789	-23.9	29
Louisiana	66,986	1.7	51,138	1.8	-15,848	-23.7	31
Mississippi	54,463	1.4	43,801	1.6	-10,662	-19.6	40
North Carolina	149,690	3.8	142,801	5.1	-6,889	-4.6	50
Oklahoma	91,781	2.3	65,992	2.3	-25,789	-28.1	24
South Carolina	98,576	2.5	71,382	2.5	-27,194	-27.6	25
Tennessee	55,459	1.4	34,271	1.2	-21,188	-38.2	11
Texas	291,776	7.4	232,020	8.3	-59,756	-20.5	38
Virginia	254,097	6.5	206,827	7.4	-47,270	-18.6	42
West Virginia	15,517	0.4	13,326	0.5	-2,191	-14.1	46
Total	1,650,435	42.0	1,314,088	46.7	-336,347	-20.4	

Table 12. Levels, Changes, and Ranks for Total U.S.-based Defense Department Personnel, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Total[1] 1987	Percent of Total 1987	Total[1] 2002	Percent of Total 2002	Change in Total 1987-2002	Percent Changeln Total 1987-2002	Rank for Percent Drop in Total
West							
Alaska	33,819	0.9	25,815	0.9	-8,004	-23.7	30
Arizona	56,106	1.4	48,667	1.7	-7,439	-13.3	47
California	474,802	12.1	274,471	9.8	-200,331	-42.2	7
Colorado	76,871	2.0	60,752	2.2	-16,119	-21.0	37
Hawaii	78,504	2.0	62,597	2.2	-15,907	-20.3	39
Idaho	15,196	0.4	12,592	0.4	-2,604	-17.1	43
Kansas	52,281	1.3	36,899	1.3	-15,382	-29.4	21
Missouri	77,230	2.0	52,823	1.9	-24,407	-31.6	18
Montana	13,192	0.3	10,724	0.4	-2,468	-18.7	41
Nebraska	30,251	0.8	19,917	0.7	-10,334	-34.2	15
Nevada	18,203	0.5	17,129	0.6	-1,074	-5.9	49
New Mexico	37,813	1.0	25,918	0.9	-11,895	-31.5	19
North Dakota	20,588	0.5	14,688	0.5	-5,900	-28.7	22
Oregon	23,545	0.6	18,243	0.6	-5,302	-22.5	33
South Dakota	15,568	0.4	10,430	0.4	-5,138	-33.0	17
Utah	45,202	1.1	33,680	1.2	-11,522	-25.5	27
Washington	108,179	2.7	90,276	3.2	-17,903	-16.5	44
Wyoming	9,254	0.2	7,731	0.3	-1,523	-16.5	45
Total	1,186,604	30.2	823,352	29.3	-363,252	-30.6	
Northeast	646,775	16.4	388,879	13.8	-257,896	-39.9	
Midwest	450,450	11.4	284,635	10.1	-165,815	-36.8	
Northeast and Midwest	1,097,225	27.9	673,514	24.0	-423,711	-38.6	
South	1,650,435	42.0	1,314,088	46.7	-336,347	-20.4	
West	1,186,604	30.2	823,352	29.3	-363,252	-30.6	
South and West	2,837,039	72.1	2,137,440	76.0	-699,599	-24.7	
U.S. Total[2]	3,934,264	100.0	2,810,954	100.0	-1,123,310	-28.6	

[1]Counts the Defense Department personnel in the United States for active duty military, reserve and National Guard forces, and civilian employees as of September 30.
[2]U.S. totals exclude foreign-based personnel, as well as personnel in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data for active duty military and Defense Department civilian employees from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002, and based on data for reserves and National Guard from Department of Defense, Directorate for Information Operations and Reports, *Atlas/Data Abstract for the United States and Selected Areas*, fiscal years 1987 and 2002.

Table 13. Major Closings of Military Installations in the Northeast-Midwest from BRAC Rounds 1988, 1991, 1993, 1995

Northeast-Midwest Institute, April 2005

Sites[1]	No.	Branch	BRAC Round	Rank for No. of Major Closings
New England				
Maine	1			20
Loring Air Force Base		Air Force	1991	
Massachusetts	3			10
Naval Air Station		Navy	1995	
Fort Devens		Army	1991	
Army Material Technology Laboratory		Army	1988	
New Hampshire	1			20
Pease Air Force Base		Air Force	1988	
Mid-Atlantic				
Maryland	4			6
Fort Holabird		Army	1995	
Fort Ritchie		Army	1995	
Naval Surface Warfare Center, Dahlgren Div. Detachment		Navy	1995	
Naval Electronic Systems Engineering Center		Navy	1993	
New Jersey	1			20
Bayonne Military Ocean Terminal		Army	1995	
New York	5			4
Seneca Army Depot		Army	1995	
Roslyn Air Guard Station		Air Force	1995	
Naval Station Staten Island		Navy	1993	
Plattsburgh Air Force Base		Air Force	1993	
Naval Station New York		Navy	1988	
Pennsylvania	6			3
Fort Indiantown Gap		Army	1995	
Naval Air Warfare Center - Aircraft Div.		Navy	1995	
Defense Personnel Support Center		DLA[2]	1993	
Naval Station Philadelphia		Navy	1991	
Philadelphia Naval Shipyard		Navy	1991	
Naval Hospital Philadelphia		Navy	1988	

Table 13. Major Closings of Military Installations in the Northeast-Midwest from BRAC Rounds 1988, 1991, 1993, 1995

Northeast-Midwest Institute, April 2005

Sites[1]	No.	Branch	BRAC Round	Rank for No. of Major Closings
Midwest				
Illinois	5			4
Savanna Army Depot Activity		Army	1995	
Naval Air Station Glenview		Navy	1993	
O'Hare International Airport Air Force Reserve Station		Air Force	1993	
Fort Sheridan		Army	1988	
Chanute Air Force Base		Air Force	1988	
Indiana	4			6
Naval Air Warfare Center - Aircraft Div.		Navy	1995	
Fort Ben Harrison		Army	1991	
Grissom Air Force Base		Air Force	1991	
Jefferson Proving Ground		Army	1988	
Michigan	2			13
K.I. Sawyer Air Force Base		Air Force	1993	
Wurtsmith Air Force Base		Air Force	1991	
Ohio	3			10
Gentile Air Force Station		Air Force	1993	
Newark Air Force Base		Air Force	1993	
Rickenbacker Air Guard Base		Air Force	1991	

[1]Sites are based on Defense Department identification of major closings in the United States, including 95 in the states and two in Guam. According to the U.S. General Accounting Office, the use of military facilities was shifted over to the Army and Air Force Reserves in the case of seven of the 95 major closings in the states, including Grissom Air Force Base in Indiana, Fort Devens in Massachusetts, and Fort Indiantown Gap in Pennsylvania.
[2]Defense Logistics Agency.

Sources: Northeast-Midwest Institute compilation based on data and information from Department of Defense, *Report Required by Section 2912 of the Defense Base Closure and Realignment Act of 1990, as amended through the National Defense Authorization Act for Fiscal Year 2003*, March 2004, Appendix C, and U.S. General Accounting Office, *Military Base Closures: Better Planning Needed for Future Reserve Enclaves*, June 2003.

Table 14. Personnel Counts from the Defense Department's Real Property Inventory as of October 2002[1]

(Inventory data for military, civilian, and total differ significantly from data in the Defense Department's reports on personnel, which are highlighted elsewhere in this Northeast-Midwest Institute analysis. Tallies for Military personnel include reservists and members of the National Guard.)

Northeast-Midwest Institute, April 2005

State or Region	Military[2]	% of Military	Rank for Military	Civilian[3]	% of Civilian	Rank for Civilian	Total[4]	% of Total	Rank for Total
New England									
Connecticut	12,497	0.71	36	[illegible]	[illegible]	[illegible]	13,542	0.63	36
Maine	7,724	0.44	45	[illegible]	[illegible]	[illegible]	12,168	0.56	39
Massachusetts	19,705	1.12	28	[illegible]	[illegible]	[illegible]	22,501	1.04	28
New Hampshire	3,977	0.23	50	[illegible]	[illegible]	[illegible]	4,015	0.19	50
Rhode Island	5,938	0.34	48	[illegible]	[illegible]	[illegible]	9,706	0.45	42
Vermont	4,807	0.27	49	[illegible]	[illegible]	[illegible]	4,807	0.22	49
Total	54,648	3.10		[illegible]	[illegible]		66,739	3.09	
Mid-Atlantic									
Delaware	8,931	0.51	42	[illegible]	[illegible]	[illegible]	9,650	0.45	44
Maryland	42,192	2.39	11	25,692	6.44	[illegible]	67,959	3.14	9
New Jersey	23,905	1.36	24	10,396	2.61	[illegible]	34,301	1.59	21
New York	42,691	2.42	10	4,658	1.17	[illegible]	47,359	2.19	12
Pennsylvania	35,603	2.02	14	9,076	2.27	[illegible]	44,679	2.07	16
Total	153,322	8.70		50,541	12.66		203,948	9.43	
Midwest									
Illinois	32,105	1.82	17	[illegible]	[illegible]	[illegible]	39,764	1.84	18
Indiana	21,387	1.21	25	[illegible]	[illegible]	[illegible]	25,552	1.18	26
Iowa	9,641	0.55	40	[illegible]	[illegible]	[illegible]	9,664	0.45	43
Michigan	16,747	0.95	32	[illegible]	[illegible]	[illegible]	20,218	0.94	31
Minnesota	16,437	0.93	33	[illegible]	[illegible]	[illegible]	16,611	0.77	34
Ohio	31,493	1.79	19	10,279	2.58	[illegible]	41,772	1.93	17
Wisconsin	18,084	1.03	29	[illegible]	[illegible]	[illegible]	19,198	0.89	33
Total	145,894	8.28		[illegible]	[illegible]		172,779	7.99	
Northeast	207,970	11.80		[illegible]	[illegible]		270,687	12.52	
Midwest	145,894	8.28		[illegible]	[illegible]		172,779	7.99	
Northeast and Midwest	353,864	20.07		[illegible]	[illegible]		443,466	20.51	
South	845,489	47.96		[illegible]	[illegible]		1,037,676	47.99	
West	563,628	31.97		[illegible]	[illegible]		681,152	31.50	
South and West	1,409,117	79.93		[illegible]	[illegible]		1,718,828	79.49	
U.S. Total[5]	1,762,981	100.00		399,076	100.00		2,162,294	100.00	

[1]For personnel data in the real property inventory, the Defense Department compiles information from a variety of sources and includes both military and civilian personnel of the Defense Department authorized for a site or installation, as well as personnel authorized for a site but not employed by the Defense Department. The tallies of personnel in the inventory report differ significantly from those found in the Defense Department's report on *Distribution of Personnel by State and Selected Location* and its *Atlas/Data Abstract for the United States and Selected Areas*. The numbers for military personnel from the *Base Structure Report* include individuals at the site who are in the reserves or National Guard.

[2]Includes all known military personnel authorized for a site or location, including active duty, reserve and National Guard personnel.

[3]Includes all known civilian personnel employed by the Defense Department and authorized for a site or location, or, in the case of the Navy, assigned to a site or location.

[4]Includes all known military and civilian personnel employed by the Department of Defense as well as other civilian personnel not employed by the Defense Department but authorized for a site or installation, including full-time contractors, if information about them was available.

[5]U.S. totals exclude foreign-based personnel, as well as individuals in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute compilations and rankings based on data from the Department of Defense, Office of the Deputy Undersecretary of Defense (Installations & Environment), *Base Structure Report (A Summary of DoD's Real Property Inventory): Fiscal Year 2003 Baseline* (no publication date).

Appendix: Detailed Listing of Defense Department's Real Property in the Northeast-Midwest by State, October 2002

(Includes closed or unused properties for which the Defense Department still held the deed as of October 2002.)

Northeast-Midwest Institute, April 2005

Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
Connecticut				
Stratford Army Engine Plant	Army Active	124	$312.6	9
AASF Bradley IAP Ng	Army Guard	32	$49.5	101
AVCRAD Groton New London Airp	Army Guard	24	$35.5	351
MTA Camp Rowland	Army Guard	82	$62.4	183
TS Camp Hartell	Army Guard	59	$30.3	389
TS Stones Ranch Military Reser	Army Guard	1,862	$19.8	0
Berry-Rosenblatt USARC	Army Reserve	12	$10.1	589
BG John W Middleton USARC	Army Reserve	24	$13.9	234
Bradley Intl Airport (ANG)	Air Natl Guard	148	$89.4	957
Orange ANG Communication Station	Air Natl Guard	29	$11.0	256
NAVSUBASE New London CT (Multi-Sites)	Navy Active	1,272	$1,212.3	6,487
NUWC CSO New London CT (Multi-Sites)	Navy Active	346	$150.4	72
NWIRP Bloomfield	Navy Active	85	$27.5	0
Other Sites		404	$203.6	3,914
State totals		**4,503**	**$2,228.4**	**13,542**
Delaware				
Duncan Armory AASF	Army Guard	26	$12.9	162
NG New Castle TS Rifle Range	Army Guard	227	$20.1	79
TS Bbts	Army Guard	194	$18.3	32
Wilmington	Army Guard	15	$11.9	138
Dover AFB	AF Active	3,824	$1,309.8	6,175
Dover Family Hsg Annex	AF Active	77	$43.3	0
New Castle County Airport	Air Natl Guard	79	$72.4	1,115
Other Sites		124	$82.0	1,949
State totals		**4,566**	**$1,570.5**	**9,650**

Appendix: Detailed Listing of Defense Department's Real Property in the Northeast-Midwest by State, October 2002

(Includes closed or unused properties for which the Defense Department still held the deed as of October 2002.)

Northeast-Midwest Institute, April 2005

Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
Illinois				
Charles Melvin Price Spt Ctr	Army Active	136	$221.6	312
Joliet AAP Elwood	Army Active	3,186	$423.5	0
Joliet AAP Kankakee	Army Active	1,597	$36.0	3
Rock Island Arsenal	Army Active	893	$1,217.7	3,811
Savanna Depot Act	Army Active	13,061	$1,140.6	10
Bartonville (Peoria Jafrc)	Army Guard	27	$39.5	0
Bloomington Armory OMS	Army Guard	11	$15.8	175
Crestwood Armory OMS	Army Guard	18	$21.5	482
Machesney Park Armory	Army Guard	12	$22.6	191
Marion Armory OMS	Army Guard	11	$16.7	120
Marseilles (MTA Tng Area)	Army Guard	2,815	$50.0	104
N Riverside (Ng Maint Center)	Army Guard	33	$34.5	60
NG Quad Cities Armory OMS	Army Guard	25	$11.4	235
Peoria AASF # 3 OMS	Army Guard	47	$22.5	333
Springfield (TS Cp Lincoln)	Army Guard	160	$83.3	1,293
Urbana Armory OMS	Army Guard	22	$15.9	277
C M Price Ctr Land For Future	Army Reserve	42	$31.2	0
Col P. Schulstad USARC	Army Reserve	48	$36.1	588
North Shore Memorial USARC	Army Reserve	14	$11.3	0
Parkhurst USARC/OMS/Ds	Army Reserve	13	$18.6	418
Sheridan Reserve Complex	Army Reserve	90	$89.9	1,904
USAR Joliet Outdr Tng (Elwood)	Army Reserve	3,585	$17.7	0
Vietnam Vet Memorial USARC	Army Reserve	46	$13.1	220
Scott AFB	AF Active	3,545	$1,989.4	10,268
Scott Radio Relay Annex	AF Active	29	$10.3	0
Capital Municipal Airport ANG	Air Natl Guard	91	$75.4	1,144
Greater Peoria Regional Airport ANG	Air Natl Guard	339	$134.2	1,302
Naval Hospital Great Lakes	Navy Active	85	$313.2	1,714
NTC Great Lakes IL (Multi-Sites)	Navy Active	1,826	$2,148.9	4,245
PWC Great Lakes	Navy Active	44	$366.8	493
Other Sites		398	$619.4	10,062
State totals		**32,248**	**$9,248.4**	**39,764**
Indiana				
Fort Benjamin Harrison	Army Active	1,732	$358.1	0
Indiana AAP	Army Active	11,347	$1,141.4	0
Jefferson Proving Ground	Army Active	54,018	$194.3	1
Newport Chem Depot	Army Active	8,498	$244.9	66
MTA Arfta Camp Atter	Army Guard	33,139	$412.2	952
Fort Ben Harrison USARC	Army Reserve	138	$48.4	1,396
Lyle J. Thompson USARC	Army Reserve	12	$10.9	190
Grissom AFB	AF Active	2,880	$330.5	10
Fort Wayne Intl Airport	Air Natl Guard	166	$98.5	991
Hulman Regional Airport	Air Natl Guard	279	$94.4	1,021
NAVSURFWARCENDIV Crane	Navy Active	62,929	$2,330.8	3,457
NAWC-AD CSO Indianapolis, IN	Navy Active	70	$197.9	0
Other Sites		2,841	$2,755.0	17,468
State totals		**178,050**	**$8,217.3**	**25,552**

Appendix: Detailed Listing of Defense Department's Real Property in the Northeast-Midwest by State, October 2002

(Includes closed or unused properties for which the Defense Department still held the deed as of October 2002.)

Northeast-Midwest Institute, April 2005

Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
Iowa				
Iowa AAP	Army Active	19,011	$1,272.7	25
Boone Armory, OMS & AVN	Army Guard	27	$21.7	395
Council Bluffs	Army Guard	42	$10.1	54
Davenport AASF	Army Guard	12	$15.4	141
Dubuque	Army Guard	22	$24.3	266
TS Camp Dodge Johnston	Army Guard	30,440	$543.3	0
Waterloo Avn Armory	Army Guard	30	$14.1	147
Des Moines Reserve Complex	Army Reserve	40	$32.7	1,008
Des Moines Intl Airport ANG	Air Natl Guard	172	$93.4	0
Sioux Gateway Airport (ANG)	Air Natl Guard	288	$95.5	999
Other Sites		484	$293.0	6,629
State totals		**50,568**	**$2,416.2**	**9,664**
Maine				
MTA Deepwoods	Army Guard	711,000	$51.2	0
MTA Riley-Bog Brook	Army Guard	10,000	$24.6	0
TS Caswell	Army Guard	860	$11.1	0
TS Hollis Plains	Army Guard	425	$29.1	0
Columbia Falls Radar Site	AF Active	1,060	$36.7	0
Searsport Defense Fuel Support Point	AF Active	1,266	$298.7	4
Bangor Intl Airport (ANG)	Air Natl Guard	502	$220.1	943
South Portland ANG Station	Air Natl Guard	12	$12.5	271
NAS Brunswick	Navy Active	15,864	$572.7	3,720
NAVSECGRUACT Winter Harbor	Navy Active	596	$63.6	14
NAVSPTACT Portsmouth NH	Navy Active	25	$530.5	0
NCTS Cutler	Navy Active	2,999	$166.3	3
NSY Portsmouth NH (Multi-Sites)	Navy Active	273	$525.0	4,640
Other Sites		7,150	$227.2	2,573
State totals		**752,032**	**$2,769.3**	**12,168**

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Northeast-Midwest Institute, April 2005

Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
Maryland				
Aberdeen Proving Ground	Army Active	72,406	$2,719.2	8,714
Blossom Pt Field Test Facility	Army Active	1,600	$28.7	5
Defense Mapping Agency	Army Active	40	$129.0	0
Federal Regional Center Olney	Army Active	48	$22.0	0
Fort Detrick	Army Active	1,153	$853.4	2,751
Fort George G Meade	Army Active	5,067	$1,742.3	8,857
Fort Ritchie	Army Active	638	$218.2	0
U.S.A. Adelphi Laboratory Ctr	Army Active	207	$239.4	994
Walter Reed AMC Forest Glen	Army Active	164	$339.3	0
Walter Reed AMC Glen Haven	Army Active	21	$34.5	0
Edgewood Area, APG	Army Guard	140	$44.8	0
Havre De Grace Military Res	Army Guard	65	$34.0	107
MTA Camp Fretterd	Army Guard	592	$60.1	726
MTA Gunpowder Military Reservation	Army Guard	240	$19.3	182
Pikesville Mil Res	Army Guard	15	$23.2	449
Pvt Henry Costin	Army Guard	23	$10.3	303
1Sg Adam S Brandt USARC	Army Reserve	27	$11.7	590
AMSA# 83, Curtis Bay	Army Reserve	18	$57.2	23
Andrews AFB	AF Active	4,996	$1,992.2	9,318
Brandywine Globecom Annex	AF Active	1,640	$19.3	0
Governors Bridge Globecom Annex	AF Active	864	$21.1	0
Summerfield Family Hsg	AF Active	234	$168.0	0
Martin State Airport ANG	Air Natl Guard	175	$83.2	1,671
Carderock MD NSWC CSO	Navy Active	90	$163.1	15
COMNAVDIST Washington DC (Multi-Sites)	Navy Active	456	$311.0	0
NATNAVMEDCEN Bethesda MD (Multi-Sites)	Navy Active	239	$581.0	5,754
NAVAIRWARCENACDIV Patuxent (Multi-Sites)	Navy Active	13,812	$2,106.3	10,246
NAVMEDCLINIC Annapolis	Navy Active	17	$23.8	124
NAVSURFWARCEN MD (Multi-Sites)	Navy Active	186	$290.8	1,852
NAVSURFWARCENDIV Indian Head	Navy Active	3,406	$1,164.7	2,735
NRL Washington DC (Multi-Sites)	Navy Active	550	$151.5	0
PWC Washington DC (Multi-Sites)	Navy Active	17	$87.1	0
USNA Annapolis	Navy Active	2,001	$1,096.8	6,417
Other Sites		3,111	$485.6	6,126
State totals		**114,261**	**$15,332.0**	**67,959**

Appendix: Detailed Listing of Defense Department's Real Property in the Northeast-Midwest by State, October 2002

(Includes closed or unused properties for which the Defense Department still held the deed as of October 2002.)

Northeast-Midwest Institute, April 2005

Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
Massachusetts				
Soldier Systems Center	Army Active	78	$190.2	813
Devens	Army Guard	64	$26.4	247
MTA Camp Curtis Guil	Army Guard	680	$19.9	328
MTA Camp Edwards	Army Guard	14,712	$367.2	181
TS Nike 19 Coe #25326	Army Guard	15	$52.1	238
Cpl G M Craig USARC/AMSA 163	Army Reserve	14	$13.8	253
Devens Reserve Forces Tng Area	Army Reserve	5,226	$342.5	1,949
Fort Devens Trng Annex Sudbury	Army Reserve	2,292	$46.9	58
South Boston Support Activity	Army Reserve	11	$110.1	399
USARC Hingham Cohasset	Army Reserve	135	$24.3	0
Westover AFRC	Army Reserve	12	$40.3	187
Cape Cod AFS	AF Active	101	$72.9	68
Hanscom AFB	AF Active	846	$935.6	3,468
Barnes Municipal Airport ANG	Air Natl Guard	186	$97.8	976
Otis ANG Base	Air Natl Guard	4,069	$578.8	1,348
Westover ARB	AF Reserve	2,585	$667.3	2,780
Hdqtrs 4th MAW (Multi-Sites)	USMC Reserve	84	$44.3	0
NIROP Pittsfield	Navy Active	30	$101.5	30
NWIRP Bedford	Navy Active	79	$53.3	0
South Weymouth NAS CSO	Navy Active	2,252	$353.3	0
Other Sites		499	$472.2	9,178
State totals		**33,970**	**$4,610.8**	**22,501**
Michigan				
Detroit Arsenal	Army Active	170	$384.9	3,423
Sebille Manor FH Michigan	Army Active	103	$138.9	0
US Army Garrison Selfridge	Army Active	520	$274.4	233
Detroit Artillery	Army Guard	82	$19.5	0
Grand Ledge AASF	Army Guard	39	$24.0	555
Grayling Airfield	Army Guard	875	$88.0	520
ITA Fort Custer Trng Center	Army Guard	7,570	$177.0	444
Jackson	Army Guard	32	$17.8	267
Lansing CSMS	Army Guard	18	$12.6	0
MTC Camp Grayling	Army Guard	146,750	$504.5	0
Southfield USARC	Army Reserve	26	$25.0	608
Escanaba Defence Fuel Support Point	AF Active	39	$152.8	0
Alpena County Regional Airport	Air Natl Guard	674	$119.1	117
Selfridge ANG Base	Air Natl Guard	3,070	$743.0	2,975
W K Kellogg Airport	Air Natl Guard	320	$106.2	953
Other Sites		1,565	$496.2	10,123
State totals		**161,853**	**$3,283.7**	**20,218**

Appendix: Detailed Listing of Defense Department's Real Property in the Northeast-Midwest by State, October 2002

(Includes closed or unused properties for which the Defense Department still held the deed as of October 2002.)

Northeast-Midwest Institute, April 2005

Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
Minnesota				
Twin Cities AAP	Army Active	1,108	$603.3	1
Arden Hills Army Training Site	Army Guard	1,245	$27.5	0
NG Rosemount Armory	Army Guard	100	$16.3	575
Arden Hills USARC	Army Reserve	29	$24.4	523
Fort Snelling USARC/AMSA	Army Reserve	68	$44.6	1,354
Duluth Intl Airport (ANG)	Air Natl Guard	574	$118.5	0
Minneapolis-St Paul IAP-ARS	AF Reserve	246	$264.3	2,629
NIROP Minneapolis	Navy Active	88	$244.1	0
NAVAIRESCEN Minneapolis	Navy Reserve	115	$33.2	203
Other Sites		2,426	$1,133.9	11,326
State totals		**5,999**	**$2,510.0**	**16,611**
New Hampshire				
NG NH Training Site	Army Guard	105	$14.5	32
NH Veteran'S Cemetery	Army Guard	104	$93.8	0
State Military Reservation	Army Guard	43	$48.6	480
AFRC, Londonderry	Army Reserve	38	$27.3	564
New Boston AFS	AF Active	2,873	$68.1	49
Pease AFB	AF Active	2,787	$761.4	1,021
Pease Intl Tradeport	Air Natl Guard	219	$147.5	2
Other Sites		215	$185.8	1,867
State totals		**6,385**	**$1,346.9**	**4,015**

Appendix: Detailed Listing of Defense Department's Real Property in the Northeast-Midwest by State, October 2002

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Northeast-Midwest Institute, April 2005

Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
New Jersey				
Fort Monmouth Evans	Army Active	253	$84.6	0
Fort Monmouth Main Post	Army Active	1,149	$1,019.5	4,836
Fort Monmouth Wayside	Army Active	703	$10.3	0
Military Ocean Tml Bayonne	Army Active	679	$1,083.9	0
Picatinny Arsenal	Army Active	6,493	$1,189.1	2,905
Dover Picatinny Arsenal	Army Guard	74	$11.5	0
Lawrenceville Dmava Complex	Army Guard	75	$50.6	484
Morristown Armory	Army Guard	43	$20.7	363
Sea Girt MTA NJ NGTC	Army Guard	7,195	$65.3	382
Somerset Armory	Army Guard	21	$11.1	338
Teaneck Armory/ OMS1	Army Guard	14	$27.3	319
Trenton Aviation Armory/Mercer	Army Guard	15	$21.5	337
TS Fort Dix	Army Guard	94	$72.5	621
West Orange Armory	Army Guard	62	$26.9	460
Westfield Armory/OMS	Army Guard	13	$13.3	178
Caven Point USARC	Army Reserve	76	$23.9	363
Fort Dix	Army Reserve	30,943	$2,267.3	2,535
Pedricktown Support Facility	Army Reserve	82	$70.8	18
Sgt J.W. Joyce Kilmer USARC	Army Reserve	24	$19.6	587
USARC and CFMS Kilmer	Army Reserve	52	$25.2	0
Air Mobility Warfare Center	AF Active	54	$47.5	1
Fort Dix Family Hsg	AF Active	37	$20.5	0
McGuire AFB	AF Active	3,880	$2,493.1	9,242
Atlantic City Intl Airport	Air Natl Guard	296	$101.7	1,002
NAES Lakehurst	Navy Active	7,430	$932.4	3,131
NAWCACDIV CSO Trenton NJ (Multi-Sites)	Navy Active	69	$237.5	0
WPNSUPPFAC Yorktown Det Earle	Navy Active	11,851	$1,178.6	1,327
Fort Dix NJ NAVRESCEN	Navy Reserve	14	$15.7	0
Other Sites		10,139	$409.8	4,872
State totals		**81,829**	**$11,551.8**	**34,301**

Appendix: Detailed Listing of Defense Department's Real Property in the Northeast-Midwest by State, October 2002

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Northeast-Midwest Institute, April 2005

Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
New York				
Bellmore	Army Active	16	$30.1	0
Fort Drum	Army Active	107,648	$2,869.9	12,538
Fort Hamilton	Army Active	168	$232.4	852
Fort Totten	Army Active	136	$71.3	0
Hancock Army Complex	Army Active	12	$39.2	30
Seneca Army Depot Activity	Army Active	10,269	$977.7	11
Stewart Annex	Army Active	10	$26.9	0
Watervliet Arsenal	Army Active	140	$382.3	632
West Point Mil Reservation	Army Active	16,081	$2,355.8	3,441
Albany AASF #3	Army Guard	22	$10.5	0
Fort Drum Mates OMS	Army Guard	166	$52.8	0
Hancock Field Armory OMS #5	Army Guard	30	$19.3	264
Kingston Armory OMS #7	Army Guard	19	$15.5	177
Latham Complex (State HQs)	Army Guard	42	$28.4	850
MTA Camp Smith	Army Guard	1,614	$99.2	234
Newburgh Armory	Army Guard	12	$12.0	181
NG Youngstown Wets	Army Guard	860	$31.2	0
Peekskill Armory	Army Guard	22	$12.9	312
Rochester Armory	Army Guard	11	$14.7	321
Rochester Armory AASF OMS	Army Guard	25	$24.6	505
Ronkonkoma Armory AASF OMS	Army Guard	20	$17.1	268
Troy Armory OMS #17	Army Guard	13	$11.8	499
Utica Armory OMS #6	Army Guard	20	$16.4	413
Amityville USARC	Army Reserve	15	$14.2	124
CW2 Kerry P. Hein USARC	Army Reserve	23	$16.8	392
Ernie Pyle USARC/AMSA #12	Army Reserve	36	$49.9	0
Maj D W Holleder USARC	Army Reserve	12	$13.0	405
Niagara Falls AFRC	Army Reserve	22	$31.7	387
Orangeburg USARC	Army Reserve	306	$11.0	357
Sgt Horace D Bradt USARC	Army Reserve	12	$11.5	433
Staten Island USARC	Army Reserve	14	$20.3	659
Stewart Newburgh USARC	Army Reserve	40	$57.3	168
Air Force Plant No 59	AF Active	32	$131.4	0
Newport Test Annex No 2 Transmitter	AF Active	41	$11.1	0
Rome Laboratory	AF Active	108	$310.6	0
Verona Test Annex	AF Active	513	$47.2	0
Francis S Gabreski Airport (ANG)	Air Natl Guard	89	$89.5	896
Griffiss Northeast Air Defense (Nead ANG)	Air Natl Guard	39	$24.0	0
Hancock Field ANG	Air Natl Guard	356	$156.3	1,177
Schenectady Airport ANG	Air Natl Guard	122	$101.9	1,355
Stewart Intl Airport	Air Natl Guard	268	$336.8	2,300
Niagara Falls IAP-ARS	AF Reserve	985	$317.5	2,224
Brooklyn NS CSO	Navy Active	45	$145.7	0
NAVSUBASE New London CT (Multi-Sites)	Navy Active	94	$93.6	0
NAVSUPPU Saratoga Springs	Navy Active	123	$50.8	0

(New York continued on next page)

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Northeast-Midwest Institute, April 2005

Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
(New York, continued)				
NWIRP Bethpage	Navy Active	148	$279.3	3
NWIRP Calverton	Navy Active	6,048	$254.3	0
Staten Island NS CSO	Navy Active	213	$194.0	4
NAVMARCORESCEN Brooklyn	Navy Reserve	199	$58.1	633
Other Sites		9,980	$797.3	14,314
State totals		**157,321**	**$10,992.8**	**47,359**
Ohio				
Defense Supply Center Columbus	Army Active	551	$752.2	15
Lima Army Tank Plt	Army Active	369	$327.6	7
Ravenna AAP	Army Active	1,468	$336.3	0
Akron-Canton Aprt	Army Guard	42	$23.4	547
Beightler Armory	Army Guard	51	$16.6	0
Camp Perry Training Site (MTA)	Army Guard	640	$118.7	100
Newark	Army Guard	23	$19.6	190
Rickenbacker (MTA)	Army Guard	126	$53.1	803
TS Hawk McConnelsville	Army Guard	444	$35.6	410
TS Newton Falls (Raap)	Army Guard	41,358	$693.0	0
Walbridge	Army Guard	16	$13.8	284
83D Div Memorial USARC/AMSA	Army Reserve	19	$25.4	1,141
Cooney USARC/AMSA #165 S-S	Army Reserve	10	$11.9	125
Fort Hayes Memorial USARC	Army Reserve	15	$21.4	273
Kings Mills Memorial USARC	Army Reserve	19	$15.9	350
Rickenbacker Storage Facility	Army Reserve	35	$18.1	308
Toledo Area USAR	Army Reserve	52	$13.6	318
Cincinnati Defense Fuel Support Point	AF Active	67	$37.3	0
Wright Patterson AFB	AF Active	8,145	$5,253.8	17,766
Blue Ash ANG Station	Air Natl Guard	12	$12.4	132
Camp Perry ANG Station	Air Natl Guard	32	$17.5	205
Mansfield Lahm Airport ANG	Air Natl Guard	224	$67.7	1,007
Rickenbacker ANG Base	Air Natl Guard	1,097	$272.3	1,352
Springfield Beckley Municipal Airport	Air Natl Guard	114	$91.6	1,059
Toledo Express Airport ANG	Air Natl Guard	135	$77.8	1,048
Youngstown-Warren Regional Airport ARS	AF Reserve	658	$163.8	1,628
NTC Great Lakes IL (Multi-Sites)	Navy Active	31	$21.8	0
NAVAIRESCEN Columbus	Navy Reserve	24	$12.1	1
Other Sites		1,951	$400.6	12,703
State totals		**57,728**	**$8,924.7**	**41,772**

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Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
Pennsylvania				
Carlisle Barracks	Army Active	458	$249.3	784
Defense Distrib. Susq.	Army Active	848	$740.5	255
Fort Ritchie Raven Rock Site	Army Active	716	$108.9	0
Letterkenny Army Depot	Army Active	19,012	$1,305.1	1,267
Scranton AAP	Army Active	15	$72.3	0
Tobyhanna Army Depot	Army Active	1,296	$602.8	3,116
Fort Mifflin	Army Guard	28	$11.5	0
Harrisburg	Army Guard	32	$19.4	684
Philadelphia	Army Guard	11	$21.6	760
TS Fort Indiantown Gap	Army Guard	17,797	$813.9	0
Wilkes-Barre Kingston	Army Guard	13	$15.6	410
Charles E. Kelly Spt Facility	Army Reserve	125	$48.8	310
ECS AMSA #103 (G)	Army Reserve	11	$30.2	0
Johnstown Aviation Support Fac	Army Reserve	116	$44.5	8
Proposed USARC/OMS/AMSA# 105	Army Reserve	36	$27.9	0
Tacony Warehouse Site	Army Reserve	14	$40.2	0
USARC Edgemont	Army Reserve	49	$16.9	580
Worcester USARC	Army Reserve	19	$11.8	291
Fort Indiantown Gap ANG Station	Air Natl Guard	131	$33.7	1,309
Harrisburg IAP	Air Natl Guard	39	$70.4	1,111
Pittsburgh Intl Airport (ANG)	Air Natl Guard	179	$109.4	0
Pittsburgh IAP-ARS	AF Reserve	181	$126.8	1,346
Willow Grove ARS	AF Reserve	221	$184.1	2,344
NAVSUPPACT Mechanicsburg	Navy Active	992	$1,018.3	1,790
NAVSURFWARCEN SHIPSYSENGSTA	Navy Active	271	$528.8	1,670
Philadelphia NH CSO	Navy Active	49	$129.9	0
Warminster NAWC-AD CSO	Navy Active	542	$301.6	0
NAS Willow Grove	Navy Reserve	967	$396.5	1,771
NAVMARCORESCEN Pittsburgh	Navy Reserve	13	$10.4	241
Other Sites		2,491	$1,923.4	24,632
State totals		**46,669**	**$9,014.6**	**44,679**
Rhode Island				
Camp Fogarty Tng Site	Army Guard	374	$32.1	565
Davisville Family Hsg	Army Reserve	14	$10.9	0
Coventry ANG Station	Air Natl Guard	17	$11.9	22
North Smithfield ANG Station	Air Natl Guard	34	$12.4	217
Quonset State Airport ANG	Air Natl Guard	94	$94.8	979
CBC CSO Davisville RI (Multi-Sites)	Navy Active	910	$391.9	0
Naval Station Newport RI (Multi-Sites)	Navy Active	1,431	$1,176.4	949
NAVAMBCARECEN Newport	Navy Active	41	$63.2	394
NAVUNSEAWARCENDIV Newport RI (Multi-Sites)	Navy Active	60	$318.7	2,770
Other Sites		214	$248.1	3,810
State totals		**3,189**	**$2,360.4**	**9,706**

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(Includes closed or unused properties for which the Defense Department still held the deed as of October 2002.)

Northeast-Midwest Institute, April 2005

Sites[1]	Branch	Acres[2]	Plant Replacement Value[2,3] (in millions)	Total Personnel On Site[4]
Vermont				
NG Ethan Allen AFB (MTA)	Army Guard	667	$89.8	0
So Burlington	Army Guard	14	$10.8	191
TS Camp Johnson	Army Guard	64	$21.7	478
TS Ethan Allen Range	Army Guard	11,219	$52.3	492
Burlington Intl Airport (ANG)	Air Natl Guard	231	$98.6	1,007
Other Sites		121	$79.7	2,639
State totals		**12,316**	**$352.9**	**4,807**
Wisconsin				
Badger AAP	Army Active	7,378	$1,114.4	0
Camp Williams (Tomah) MTA	Army Guard	50	$58.5	0
Educ Training Ctr (Sparta)	Army Guard	29	$28.4	101
Madison (Truax Field)	Army Guard	16	$28.8	356
TS Fort McCoy (Sparta)	Army Guard	97	$27.5	0
Denis J. Murphy USARC/AMSA/OMS	Army Reserve	15	$12.6	338
Fort McCoy	Army Reserve	127,730	$1,571.6	2,578
W. Silver Spring Complex	Army Reserve	127	$63.1	1,887
General Mitchell Intl Apt (ANG)	Air Natl Guard	72	$89.1	884
Hardwood Weapons Range (ANG)	Air Natl Guard	7,865	$10.9	0
Truax Field	Air Natl Guard	154	$195.5	1,036
Volk Field	Air Natl Guard	2,402	$244.0	253
Gen Mitchell IAP-ARS	AF Reserve	103	$122.6	1,549
NCTAMS LANT Norfolk VA (Multi-Sites)	Navy Active	127	$18.4	0
Other Sites		3,552	$429.4	10,216
State totals		**149,715**	**$4,015.0**	**19,198**

[1]Separately lists Northeast-Midwest sites from the Defense Department's real property inventory (as of October 1, 2002). Individual listings are for sites consisting of more than ten acres and having plant replacement values of more than $10 million. Data for "Other Sites" show aggregate amounts for those sites in a state that do not meet the critria for size and value. The list includes closed or unused properties for which the Defense Department still held the deed as of October 2002. Sites are listed using the names and abbreviations from the Defense Department. The "multi-sites" designation indicates that the parent unit is located in another state, so, in most cases, the data shown only relect those facilities listed in the state. The Defense Department made exceptions to this approach for multi-sites listings of Air Force strategic missile sites, in which cases the data from the sites were rolled up and counted for one of seven parent installations.

[2]Acres and values for sites within a state may not sum to the state total, in keeping with the levels listed in the source data from the Defense Department. Some of these descrepencies likely stem from rounding.

[3]Plant replacement values are for the estimated costs of replacing the facilities and supporting infrastructure at the time that the inventory was compiled.

[4]The Defense Department compiled data on personnel from a variety of sources. Personnel includes military and civilian Defense Department personnel from all branches of service, as well as civilian personnel at the site but not employed by the Defense Department. Military personnel includes individuals in the reserves and the National Guard.

Source: Northeast-Midwest Institute compilations based on data from the Department of Defense, Office of the Deputy Undersecretary of Defense (Installations & Environment), *Base Structure Report (A Summary of DoD's Real Property Inventory): Fiscal Year 2003 Baseline* (no publication date).

Summary Table 1. Levels, Changes, and Ranks for U.S.-based Active Duty Military, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Active Duty Military[1] 1987	Percent of Active Duty Military 1987	Active Duty Military[1] 2002	Percent of Active Duty Military 2002	Change in Active Duty Military 1987-2002	Percent Change in Act. Duty Military 1987-2002	Rank for Percent Drop in Act. Duty Military
New England							
Connecticut	7,223	0.5	4,239	0.4	-2,984	-41.3	14
Maine	5,849	0.4	2,689	0.3	-3,160	-54.0	7
Massachusetts	9,355	0.7	2,427	0.2	-6,928	-74.1	5
New Hampshire	4,143	0.3	326	0.0	-3,817	-92.1	1
Rhode Island	3,941	0.3	2,974	0.3	-967	-24.5	26
Vermont	68	0.0	61	0.0	-7	-10.3	41
Total	30,579	2.2	12,716	1.2	-17,863	-58.4	
Mid-Atlantic							
Delaware	4,818	0.3	3,899	0.4	-919	-19.1	33
Maryland	35,726	2.6	30,928	3.0	-4,798	-13.4	37
New Jersey	19,673	1.4	6,306	0.6	-13,367	-67.9	6
New York	27,040	2.0	20,882	2.0	-6,158	-22.8	29
Pennsylvania	6,600	0.5	3,098	0.3	-3,502	-53.1	8
Total	93,857	6.8	65,113	6.2	-28,744	-30.6	
Midwest							
Illinois	37,250	2.7	25,036	2.4	-12,214	-32.8	19
Indiana	6,543	0.5	1,041	0.1	-5,502	-84.1	3
Iowa	380	0.0	447	0.0	67	17.6	NA
Michigan	9,300	0.7	1,173	0.1	-8,127	-87.4	2
Minnesota	901	0.1	702	0.1	-199	-22.1	30
Ohio	11,780	0.9	6,899	0.7	-4,881	-41.4	13
Wisconsin	884	0.1	532	0.1	-352	-39.8	16
Total	67,038	4.9	35,830	3.4	-31,208	-46.6	
South							
Alabama	23,825	1.7	11,354	1.1	-12,471	-52.3	9
Arkansas	9,793	0.7	4,855	0.5	-4,938	-50.4	10
District of Columbia	13,048	0.9	12,767	1.2	-281	-2.2	Not rated
Florida	75,713	5.5	55,815	5.3	-19,898	-26.3	25
Georgia	62,909	4.6	64,392	6.2	1,483	2.4	NA
Kentucky	39,196	2.8	34,081	3.3	-5,115	-13.0	38
Louisiana	25,249	1.8	16,541	1.6	-8,708	-34.5	17
Mississippi	17,470	1.3	14,005	1.3	-3,465	-19.8	32
North Carolina	94,786	6.9	94,296	9.0	-490	-0.5	46
Oklahoma	30,786	2.2	23,664	2.3	-7,122	-23.1	28
South Carolina	44,629	3.2	37,943	3.6	-6,686	-15.0	35
Tennessee	10,549	0.8	2,554	0.2	-7,995	-75.8	4
Texas	135,071	9.8	115,100	11.0	-19,971	-14.8	36
Virginia	99,950	7.3	90,851	8.7	-9,099	-9.1	44
West Virginia	420	0.0	558	0.1	138	32.9	NA
Total	683,394	49.6	578,776	55.4	-104,618	-15.3	

Summary Table 1. Levels, Changes, and Ranks for U.S.-based Active Duty Military, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Active Duty Military[1] 1987	Percent of Active Duty Military 1987	Active Duty Military[1] 2002	Percent of Active Duty Military 2002	Change in Active Duty Military 1987-2002	Percent Change in Act. Duty Military 1987-2002	Rank for Percent Drop in Act. Duty Military
West							
Alaska	22,127	1.6	15,906	1.5	-6,221	-28.1	23
Arizona	24,880	1.8	22,448	2.1	-2,432	-9.8	43
California	206,495	15.0	123,948	11.9	-82,547	-40.0	15
Colorado	42,709	3.1	29,733	2.8	-12,976	-30.4	22
Hawaii	45,396	3.3	34,608	3.3	-10,788	-23.8	27
Idaho	5,877	0.4	4,251	0.4	-1,626	-27.7	24
Kansas	23,127	1.7	15,819	1.5	-7,308	-31.6	21
Missouri	15,691	1.1	16,119	1.5	428	2.7	NA
Montana	4,018	0.3	3,512	0.3	-506	-12.6	39
Nebraska	13,498	1.0	7,793	0.7	-5,705	-42.3	12
Nevada	9,955	0.7	8,461	0.8	-1,494	-15.0	34
New Mexico	16,567	1.2	11,254	1.1	-5,313	-32.1	20
North Dakota	11,245	0.8	7,465	0.7	-3,780	-33.6	18
Oregon	760	0.1	705	0.1	-55	-7.2	45
South Dakota	6,744	0.5	3,350	0.3	-3,394	-50.3	11
Utah	6,044	0.4	5,447	0.5	-597	-9.9	42
Washington	43,289	3.1	38,521	3.7	-4,768	-11.0	40
Wyoming	4,141	0.3	3,292	0.3	-849	-20.5	31
Total	502,563	36.5	352,632	33.7	-149,931	-29.8	
Northeast	124,436	9.0	77,829	7.4	-46,607	-37.5	
Midwest	67,038	4.9	35,830	3.4	-31,208	-46.6	
Northeast and Midwest	191,474	13.9	113,659	10.9	-77,815	-40.6	
South	683,394	49.6	578,776	55.4	-104,618	-15.3	
West	502,563	36.5	352,632	33.7	-149,931	-29.8	
South and West	1,185,957	86.1	931,408	89.1	-254,549	-21.5	
U.S. Total[2]	1,377,431	100.0	1,045,067	100.0	-332,364	-24.1	

[1]Counts Defense Department active duty military personnel in the United States as of September 30. The personnel data do not include individuals in the reserves or National Guard, or personnel afloat. In some cases, especially those pertaining to metropolitan areas, military departments may report personnel by parent installation or assigned location rather than their operating location. Different departments of the armed forces may differ in their reporting practices for personnel in transit or transition, as well as personnel on temporary duty.
[2]U.S. totals exclude foreign-based personnel, as well as personnel in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002.

Summary Table 2. Levels, Changes, and Ranks for Total U.S.-based Defense Department Personnel, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Total[1] 1987	Percent of Total 1987	Total[1] 2002	Percent of Total 2002	Change in Total 1987-2002	Percent Change in Total 1987-2002	Rank for Percent Drop in Total
New England							
Connecticut	28,222	0.7	16,923	0.6	-11,299	-40.0	10
Maine	26,385	0.7	15,681	0.6	-10,704	-40.6	9
Massachusetts	62,029	1.6	31,542	1.1	-30,487	-49.1	4
New Hampshire	13,638	0.3	6,566	0.2	-7,072	-51.9	1
Rhode Island	17,824	0.5	13,057	0.5	-4,767	-26.7	26
Vermont	6,857	0.2	5,358	0.2	-1,499	-21.9	35
Total	154,955	3.9	89,127	3.2	-65,828	-42.5	
Mid-Atlantic							
Delaware	15,096	0.4	11,452	0.4	-3,644	-24.1	28
Maryland	114,040	2.9	88,458	3.1	-25,582	-22.4	34
New Jersey	86,749	2.2	43,054	1.5	-43,695	-50.4	2
New York	137,163	3.5	79,436	2.8	-57,727	-42.1	8
Pennsylvania	138,772	3.5	77,352	2.8	-61,420	-44.3	5
Total	491,820	12.5	299,752	10.7	-192,068	-39.1	
Midwest							
Illinois	114,881	2.9	75,413	2.7	-39,468	-34.4	14
Indiana	60,335	1.5	34,134	1.2	-26,201	-43.4	6
Iowa	23,195	0.6	17,749	0.6	-5,446	-23.5	32
Michigan	70,378	1.8	35,738	1.3	-34,640	-49.2	3
Minnesota	36,346	0.9	26,084	0.9	-10,262	-28.2	23
Ohio	108,210	2.8	69,333	2.5	-38,877	-35.9	13
Wisconsin	37,105	0.9	26,184	0.9	-10,921	-29.4	20
Total	450,450	11.4	284,635	10.1	-165,815	-36.8	
South							
Alabama	97,415	2.5	61,389	2.2	-36,026	-37.0	12
Arkansas	37,183	0.9	24,717	0.9	-12,466	-33.5	16
District of Columbia	42,533	1.1	37,161	1.3	-5,372	-12.6	Not rated
Florida	171,235	4.4	135,050	4.8	-36,185	-21.1	36
Georgia	145,239	3.7	134,517	4.8	-10,722	-7.4	48
Kentucky	78,485	2.0	59,696	2.1	-18,789	-23.9	29
Louisiana	66,986	1.7	51,138	1.8	-15,848	-23.7	31
Mississippi	54,463	1.4	43,801	1.6	-10,662	-19.6	40
North Carolina	149,690	3.8	142,801	5.1	-6,889	-4.6	50
Oklahoma	91,781	2.3	65,992	2.3	-25,789	-28.1	24
South Carolina	98,576	2.5	71,382	2.5	-27,194	-27.6	25
Tennessee	55,459	1.4	34,271	1.2	-21,188	-38.2	11
Texas	291,776	7.4	232,020	8.3	-59,756	-20.5	38
Virginia	254,097	6.5	206,827	7.4	-47,270	-18.6	42
West Virginia	15,517	0.4	13,326	0.5	-2,191	-14.1	46
Total	1,650,435	42.0	1,314,088	46.7	-336,347	-20.4	

Summary Table 2. Levels, Changes, and Ranks for Total U.S.-based Defense Department Personnel, 1987-2002

Northeast-Midwest Institute, April 2005

State or Region	Total[1] 1987	Percent of Total 1987	Total[1] 2002	Percent of Total 2002	Change in Total 1987-2002	Percent Change in Total 1987-2002	Rank for Percent Drop in Total
West							
Alaska	33,819	0.9	25,815	0.9	-8,004	-23.7	30
Arizona	56,106	1.4	48,667	1.7	-7,439	-13.3	47
California	474,802	12.1	274,471	9.8	-200,331	-42.2	7
Colorado	76,871	2.0	60,752	2.2	-16,119	-21.0	37
Hawaii	78,504	2.0	62,597	2.2	-15,907	-20.3	39
Idaho	15,196	0.4	12,592	0.4	-2,604	-17.1	43
Kansas	52,281	1.3	36,899	1.3	-15,382	-29.4	21
Missouri	77,230	2.0	52,823	1.9	-24,407	-31.6	18
Montana	13,192	0.3	10,724	0.4	-2,468	-18.7	41
Nebraska	30,251	0.8	19,917	0.7	-10,334	-34.2	15
Nevada	18,203	0.5	17,129	0.6	-1,074	-5.9	49
New Mexico	37,813	1.0	25,918	0.9	-11,895	-31.5	19
North Dakota	20,588	0.5	14,688	0.5	-5,900	-28.7	22
Oregon	23,545	0.6	18,243	0.6	-5,302	-22.5	33
South Dakota	15,568	0.4	10,430	0.4	-5,138	-33.0	17
Utah	45,202	1.1	33,680	1.2	-11,522	-25.5	27
Washington	108,179	2.7	90,276	3.2	-17,903	-16.5	44
Wyoming	9,254	0.2	7,731	0.3	-1,523	-16.5	45
Total	1,186,604	30.2	823,352	29.3	-363,252	-30.6	
Northeast	646,775	16.4	388,879	13.8	-257,896	-39.9	
Midwest	450,450	11.4	284,635	10.1	-165,815	-36.8	
Northeast and Midwest	1,097,225	27.9	673,514	24.0	-423,711	-38.6	
South	1,650,435	42.0	1,314,088	46.7	-336,347	-20.4	
West	1,186,604	30.2	823,352	29.3	-363,252	-30.6	
South and West	2,837,039	72.1	2,137,440	76.0	-699,599	-24.7	

[1]Counts the Defense Department personnel in the United States for active duty military, reserve and National Guard forces, and civilian employees as of September 30.
[2]U.S. totals exclude foreign-based personnel, as well as personnel in Puerto Rico and the territories. The District of Columbia is included in the South.

Source: Northeast-Midwest Institute calculations based on data for active duty military and Defense Department civilian employees from the Department of Defense, Directorate for Information Operations and Reports, *Distribution of Personnel by State and Selected Location (M02)*, September 30, 1987, and September 30, 2002, and based on data for reserves and National Guard from Department of Defense, Directorate for Information Operations and Reports, *Atlas/Data Abstract for the United States and Selected Areas*, fiscal years 1987 and 2002.

6/28/2005 10:59 AM

From: Michael.regan@po.state.ct.us

To: steven.cincotta@navy.mil, dennis.biddick@navy.mil
cc: GStern@cmeec.org

Subject: Questions

Gentlemen, attached are our questions as discussed in the teleconference on Friday June 24, 2005. Per your request we have put them in writing. Gabe Stern asked me to forward these to you directly.

Please feel free to contact me if you should have any questions or require clarification. As discussed, we are on a tight time frame. Your prompt attention and response are most appreciated.

Please let me know that you received this email. Thanks

Questions 6-27-05.do

Michael Regan
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michael.regan@po.state.ct.us

QUESTIONS FOR THE DEPARTMENT OF NAVY

KNOWN ERRORS

- During the 6/24/05 teleconference you mentioned that you know of 4 errors.

    1. Please tell us what those four known errors are

    2. Please tell us of any other errors that have come to your attention since the teleconference.

ECONOMIC IMPACT ANALYSIS

DATA

Vendor Data

- Please provide a list of vendors that supply goods or services or do work for or at the New London Sub Base (e.g., construction) for the past three years (please break data out by year). For each vendor please state their location (address: zip code or town) and the dollar value of business conducted with each vendor.

Spousal Employment

- Please provide the number of spouses (and working age dependents) of military personnel stationed at the New London Sub Base employed in the private sector.

Private Schools

- Please provide the number of federal civilian and military dependents stationed at the New London Sub Base that attend private school. Please organize the data according to the following grade groupings: K-5, 6-8, 9-12.

Public Safety Services

- Please provide the following data regarding public safety services provided to surrounding communities by the New London Sub Base:

    1. Number of public safety related calls answered off the Sub Base and outside of the military housing area. Please separate by category (fire, HAZMAT, police, medical, etc).

    2. Please provide the annual cost or dollar value of answering these calls.

Services to Veterans and Military Retirees

- Please provide the following information regarding services to Veterans and Military Retirees:

    1. A list of services provided to Veterans and Military Retirees by/at the New London Sub Base.

    2. The number of Veterans and Military Retirees that use services provided by/at the New London Sub Base annually.

    3. The cost or value of providing these services

    4. The dollar value of these services to Veterans and Military Retirees

COMPARATIVE DATA

- Please provide a copy to the King's Bay Naval Base Master Plan prepared by "Zimmerman, Evans and Leopold Inc." and "AECK Associates" both from Atlanta GA.

- Please provide reproducible aerial photo(s), with scale noted, of the existing piers to be used for attack subs in New London, Kings Bay and Norfolk.

MODELING

EIT (The Web Based Model/Tool)

- Please provide a copy of or access to the EIT used in the economic impact analysis and the data used to obtain the results reported in BRAC Report volume 2 for the New London Sub Base.

IMPLAN

- Please provide a description of the version (including structural matrices and region data dates) and the configuration of the IMPLAN model used that includes (but is not limited to):

    1. Was it a county model or a zip code derived model?

    2. If it was a county model please provide a list of the counties included.

    3. If it was a zip code model please provide a list of the zip codes included.

REGION OF INFLUENCE

- With regard to the "Region of Influence" (ROI):

    1. Was any effort made to equalize the ROI when different bases had very different size MSA's?

    2. Why wasn't the Brunswick, GA MSA used for Kings Bay?

        - What was the rational for not using it?
        - Were simulations run to determine if it influenced the final outcome?

DATA CALLS

- With regard to data collection for the individual facilities:

    1. Did all of the tenant commands at New London, Kings Bay and Norfolk provide data; if not, which commands did not provide data?

    2. If an individual command did not provide data, how was the data generated? If generate by others how was the data verified?

    3. Please identify each instance where facility (or other) data was submitted but not used or modified by those using COBRA or any other analysis. Please provide the rationale for each deviation.

    4. Please provide a list of all default values used in the COBRA Model.

    5. Please describe the criteria to decide whether to use a default COBRA value.

HOUSING

- Please provide a copy of the executed contract between the federal government/Department of Defense/Navy and (believed to be) GMH for the privatization of the military housing at the New London Sub Base.

- In past BRAC rounds, the federal government has had to compensate similar companies in similar contracts for lost revenues, breach of contract, etc. as a result of any installation realignment and/or closure actions. If so, what did each cost?

- Please provide all documents related to similar privatization efforts at Kings Bay and/or Norfolk.

KINGS BAY DATA

- Schools in the region that serve the base will likely need to grow significantly to serve the expanded base population. Has this been considered and if so, where is this additional expense defined in the COBRA?

- The existing hospital facility may need to be expanded to serve the health care needs of the expanded base. Has this been confirmed and if so were these costs identified in the COBRA.

- There have been reports of salt-water infiltration to the water supply system North of Camden County. Please confirm the validity of these reports and whether an impact and cost analysis has been done. If this is the case what is the cost? Was this included in COBRA?

- The frequency of dredging needed at Kings Bay is already significant. Will the addition of more subs increase the size of the area that needs to be dredged? If so, by how much and what will the additional cost be? Was this considered? If so where is it reflected in COBRA?

- There is a notable absence of large businesses near the Kings Bay Base to accommodate spousal employment and career needs. This is in significant contrast to Groton Ct. where such opportunities are prevalent. Has this socioeconomic factor been considered in the decision-making process or cost included to bolster the local economy?

Naval Submarine Base
Groton, Connecticut

Environmental Criteria Review

Connecticut Department of Environmental Protection

June 22, 2005

The Navy significantly deviated from the BRAC selection criteria by excluding environmental restoration costs from its evaluation.

The Navy identified in summary fashion a total of $32.95 million in environmental costs to be incurred through closure of the submarine base in Groton and has unlawfully excluded remediation costs from its analysis. The Secretary's refusal to properly consider environmental restoration costs cannot be accepted by the Commission, as the recommendation to close SBNL violates the Defense Base Closure and Realignment Act of 1990, as amended ("BCRA").[1]

As required by the BCRA, the Secretary developed "the criteria proposed to be used . . . in making recommendations for the closure or realignment of military installations" for the 2005 round of base closure proceedings.[2] Those criteria became the Congressionally-mandated standard for closure recommendations by operation of the statute and cannot be ignored by the Secretary.[3] The Congress has directed that the Secretary "shall consider . . . the impact of costs related to potential environmental restoration" of military facilities in order to prepare a valid closure recommendation.[4] This criterion was substantially expanded from the environmental criteria used in prior base closure rounds to specifically include environmental cost considerations in closure decisions.[5]

The Secretary violated the statute by refusing to consider the presently estimated costs of restoration of Submarine Base New London related to more than twenty areas of identified contamination. The sole basis for this clear violation of the statute is a policy memorandum issued by the Under Secretary of Defense.[6] The Secretary of Defense cannot ignore the will of

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[1] 10 U.S.C.§2687 Note ("BCRA")
[2] BCRA §2913(a)
[3] BCRA §2913(e)
[4] BCRA §2913 (c)(4)
[5] "GAO, Military Base Closures: Observations on Prior and Current BRAC Rounds," GAO-05-614 (May 3, 2005), Table 1, p. 22. The expanded environmental criteria was codified in Public Law 108-375, Section 2832 (Oct. 28, 2004).
[6] Memorandum, "Transformation Through Base Realignment and Closure (BRAC 2005) Policy Memorandum Four-Selection Criteria 7 and 8," Michael W. Wynne, December 7, 2004, p. 3, in Base Closure and Realignment Report, Vol. 1, Appendix E, p. E-81, (May 2005).

Congress by application of a policy memorandum. There can be no greater "substantial deviation" from the final criteria of the statute than to refuse to consider identified significant costs as required by the evaluation criteria.

The DOD consistently and historically underestimates environmental restoration costs.

The current estimate of one category of restoration costs that the Secretary chose to ignore for Submarine Base New London is $23 million.[7] The absolute refusal to consider this cost is a deviation that cannot be ignored, regardless of its magnitude. Moreover, the Commission should consider that the estimate of closure costs may substantially undervalue restoration costs if past experience is any guide. Such DoD estimates have been known to undervalue actual restoration costs to varying degrees over time.[8] A recent GAO report also notes that approximately 65 per cent of the Navy's almost 13,000 un-transferred acres could not be transferred because of environmental reasons.[9] The Secretary's failure to apply prior experience of base closure restoration to the operational estimated cost of $23 million also suggests an exclusion of costs known to potentially affect closure decisions. Congress was well aware of the difficulties in estimating environmental restoration costs and the impact such costs could have on base closure decisions.[10] Nevertheless, the Congress required the Secretary to include such costs in the closure analysis for all installations. This Commission must not condone and compound the Secretary's violation by recommending a closure decision that was made in violation of the law.

The cost estimates that have been provided through the BRAC process for remediation of the Submarine Base in Groton, Connecticut, while probably accurate for certain remediation work under the Federal Superfund program

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[7] Recommendation for Closure Submarine Base New London, CT, Base Closure and Realignment Report, Vol. 2, DoN - 11 (May 2005).

[8] "Congressional Budget Office, Cleaning Up Defense Installations: Issues and Option" (January 1995), pp 17-22; "GAO, Military Base Closures: Updated Status of Prior Base Realignments and Closures," GAO-05-138 (Jan. 13, 2005), pp. 25-28.

[9] "GAO, Military Base Closures: Observations on Prior and Current BRAC Rounds," GAO-05-614 (May 3, 2005), p. 10.

[10] See, e.g., "Congressional Budget Office, Cleaning Up Defense Installations: Issues and Option" (January 1995), pp 17-22.

(CERCLA), do not adequately address many other site remediation and closure requirements.

- The Navy has only estimated closure and remediation costs of $32.95 million, and they claim, without authority to do so, that $23 million of that should be ignored as a cost already required.

- The total DEP estimated cost for remediation and closure of the Sub Base under all environmental programs is approximately $162 million based on most of the site being remediated to residential standards.

The Navy fails to make appropriate and necessary distinctions between closure costs and remediation costs.

The distinction between closure costs and remediation costs is of particular importance in this instance because of the way in which the Navy addressed these issues in its comparative analysis of the costs of various base scenarios. Specifically, the Navy has asserted that it did not include remediation costs because those costs would arise regardless of any closure or realignment decision. Even if this is a reasonable position to take, it then highlights the gross under-representation of closure costs that would only arise under a base closure or realignment scenario. The environmental costs attributable to closure and/or realignment of the base are triggered by the federally required closure of hazardous waste facilities (RCRA) and underground petroleum storage tank systems (USTs). Also, excluding remediation costs altogether ignores the fact that remediation would have to be accomplished in a much shorter time frame upon closure, most likely at higher cost, compared to keeping the base open, if the federal government is to make the base available for reuse as soon as possible after closure and meet its obligation to mitigate economic impacts on the affected community.

(1) Comparison of Navy and DEP Estimates for Remediation and Closure

(a) Environmental Closure

The Navy significantly underestimated and understated the environmental closure costs associated with closure of the Sub Base. RCRA and UST closure costs are essentially not included at all, and Navy radiological cost estimates are extremely low in light of required protocols for performing radiological assessments and surveys. It should be noted that the RCRA closure costs and the radiological costs would be incurred only if the base closes, and therefore cannot be viewed as the same "non-issue" as the Navy views the remediation costs.

Program	DEP estimate	Navy estimate
RCRA closure	$4,317,250	$1,000
UST Closure	$1,265,000	not identified
Radiological	$31,510,000 (1)	$9,950,000
Total	$37,092,250	$9,951,000

(1) incorporates the Navy's estimates for facility dismantlement and waste disposal

The DEP radiological closure cost estimate is based upon surveys and sampling necessary to demonstrate site release compliance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) developed by federal agencies in 1997. This estimate was developed using the State's experience with other facilities in Connecticut performing radiological activities to support closing. The Navy estimated the closure costs for the Sub Base to be $9.95 million: $3.44 million for surveys and sampling, $3.28 million for facility dismantlement, and $3.23 million for radiological waste disposal. The $3.44 million estimated by the Navy for surveys and sampling is consistent with the cost of a Characterization

Survey for a facility the size of the Groton Sub Base. However, characterization Surveys do not meet the statistical requirement of MARSSIM and are not substitutes for MARSSIM required activities including the Final Status Surveys. Use of Characterization Surveys alone grossly underestimates closure costs. Both the Department of Energy (Naval Nuclear Propulsion Program), and the Department of Defense (US Navy) participated in the development and agreed with MARSSIM as the federally acceptable approach to demonstrate radiologic compliance for site closure.

(b) Remediation

The Navy has provided an estimated cost of $23 million for remediation of the Sub Base under CERCLA. While this estimate may be reasonably accurate for the items it covers, the reality is that remediation of the Sub Base would have to address many more program requirements and areas of concern than are reflected in this figure. In addition to CERCLA, full remediation would address RCRA, UST, PCB and Pesticides requirements. The Navy has significantly underestimated clean-up costs associated with preparing the base for transfer and re-use.

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Program	DEP estimate (1)	Navy estimate
CERCLA	$65,019,975	$23,000,000 (2)
RCRA	$12,682,806	0
UST	$12,130,000	partial in CERCLA
PCB	$652,147	" " "
Pesticides	$35,000,000	0
Total	$125,484,928(3)	$23,000,000

(1) DEP estimates reflect more of the base being remediated to residential standards, and the likelihood that additional contamination will be found
(2) Includes no further remediation for the Area A wetland DDT contamination, an approximately $42 million item under DEP's estimate
(3) Based on predominantly residential standards

BRAC estimates for clean-up costs has historically proved to be low. Recent remediation cost estimates for both the Stratford Army Engine Plant in Stratford, Connecticut, and the Davisville Construction Battalion Center in Davisville, Rhode Island are about 50% higher than original estimates from the 1995 BRAC process. In a September 5, 1996 letter to the House Subcommittee on National Security, International Affairs and Criminal Justice, the GAO indicted that "...typically after a base is slated for closure, the likelihood increases that additional contaminated sites will be identified as more investigative work is performed." The GAO cited as an example the Pease Air Force Base in New Hampshire. Before the base was closed, the Air Force had identified 18 contaminated sites at the base, but as the closure progressed, a total of 55 sites were identified. The Groton Sub Base higher DEP cost estimates are more comprehensive and realistic due in part to the existence of additional sites requiring remediation under other programs not addressed by the Navy for the Groton site.

(2)Summary of Cost Comparisons

	DEP estimate	Navy estimate
Closure	$37,092,250	$9,951,000
Remediation	$125,484,928	$23,000,000
Total	$162,577,178	$32,951,000

(3) Environmental Conditions Affecting Military Readiness and Operational Costs

The Navy did not sufficiently consider the additional costs and potential military vulnerabilities associated with natural resource conditions at Kings Bay. These costs and vulnerabilities are minimal or nonexistent at New

London, but would be exacerbated by moving SSNs from New London to Kings Bay.

- Dredging [1]: Shoaling rates at Kings Bay are exceptionally high, necessitating annual maintenance dredging and on-going sediment control measures to maintain adequate depths for the navigational channel and SSBN berths. In contrast, sedimentation rates at New London are very low, precluding the need for frequent maintenance dredging and costly sediment control measures. The Navy has not accounted for the additional costs to dredge and maintain new berths at Kings Bay for SSNs from New London.[2]

- Hurricanes: The risk of impacts from severe hurricanes and tropical storms is significantly higher at Kings Bay than at New London due to the higher frequency of such storms at Kings Bay. Within 180 nautical miles of Kings Bay, there is an average of 1.4 tropical storms and hurricanes per year versus .76 for Groton/New London.[3] While all Navy bases are considered vulnerable to severe storms, the Subase at New London experienced a major storm surge of 10.5 feet National Geodetic Vertical Datum (NGVD) (occurring during a nearly high tide) during the devastating hurricane of 1938.[4] Models for Kings Bay have predicted a storm surge of 23.2 feet NGVD during a category 5 storm. Therefore, Kings Bay, a good portion of which lies below 10 feet, is much more vulnerable to severe storms and associated storm surges than New London where the 10-foot elevation is located very close to the waterfront and the base slopes up to an elevation of 230 feet. In addition, shoaling in Kings Bay and the

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[1] FY05 Kings Bay maintenance dredge $4.72/cy; FY04 Norfolk Harbor dredging & disposal costs $1.59/cy; last major dredging at Subase NL was 1996 dredge for Seawolf at $2.65/cy.

[2] Without knowing the exact configuration and number of new vs. existing berths at Kings Bay & Norfolk to accommodate relocated NL SSNs, it is impossible to determine the volume, extent, type, and therefore cost of new dredging required.

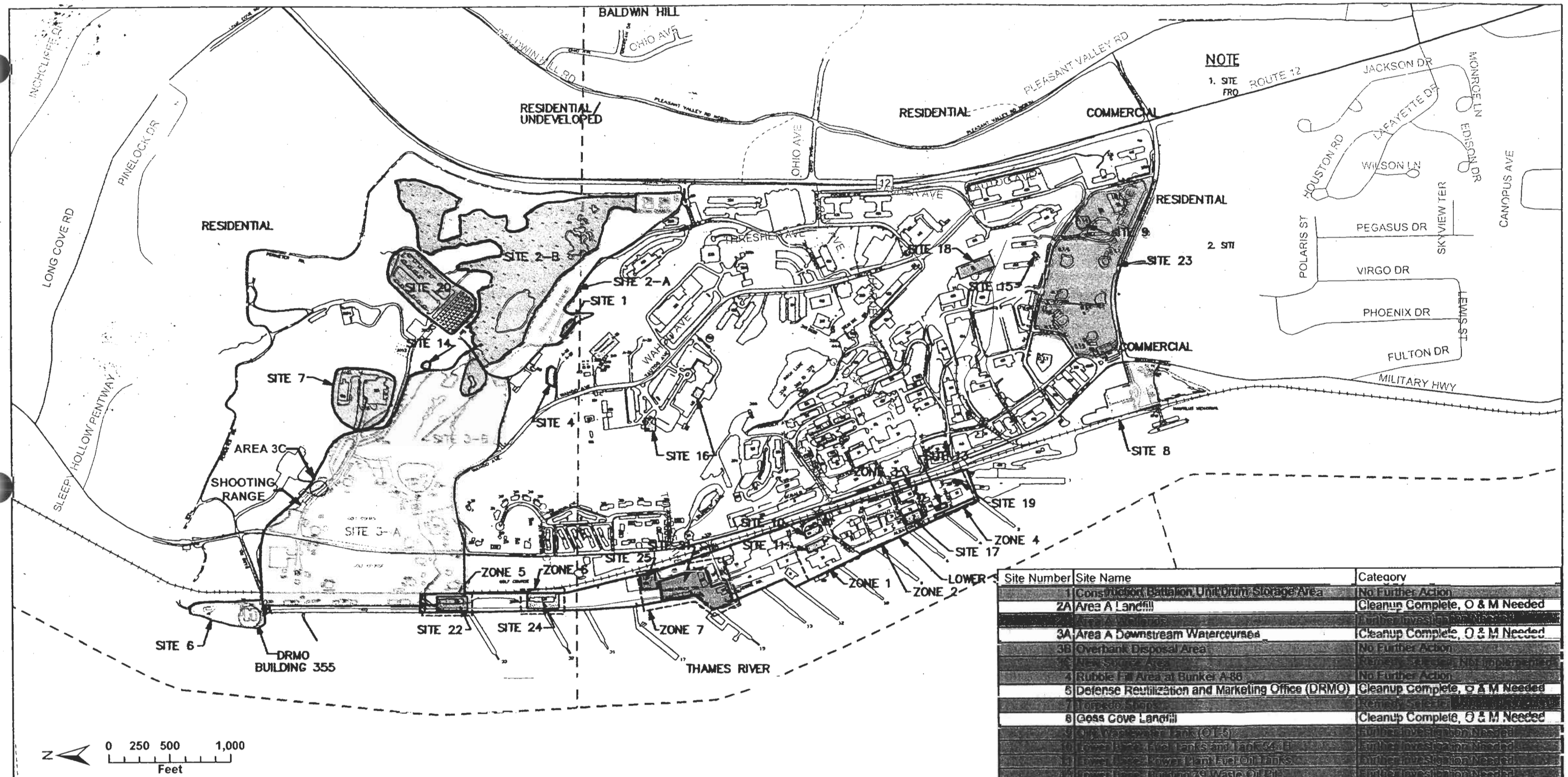
[3] All data in this paragraph from The Department of the Navy's Hurricane Havens Handbook for the North Atlantic unless otherwise noted - (http://pao.cnmoc.navy.mil/nmosw/tr8203nc/kingsbay/text/sect1.htm), (http://pao.cnmoc.navy.mil/nmosw/tr8203nc/nlondon/text/sect7.htm), and http://pao.cnmoc.navy.mil/nmosw/tr8203nc/kingsbay/text/sect4.htm)
At its peak intensity, the '38 Hurricane was a category 5 storm on the Saffir-Simpson Scale with maximum sustained winds of 161 mph.

[4] The Long Island Express, The Great Hurricane of 1938
http://www2.sunysuffolk.edu/mandias/38hurricane/track.html

upper Cumberland Sound Channel can be particularly exacerbated by a significant storm, negatively affecting usable channel depths. Further, due to observed currents, Port Services generally conduct all major ship movements during periods of slack water. Therefore, during and following a significant storm event, operations and readiness could be seriously compromised. No such constraints exist at Subase New London.

- Endangered species: While elaborate operational protocols at Kings Bay have been designed to minimize impacts to federally protected species including right whales, manatees and sea turtles, the Navy has not accounted for the additional costs and operational constraints necessary to protect the threatened species from impacts resulting from the relocation of SSN operations and support facilities to the Kings Bay environment.[1] Additional ship movements would cause restrictions/precautions on those new ship movements and increased monitoring costs to mitigate the additional impacts. Further, additions/modifications to upland areas of Kings Bay would have to include all necessary safeguards to protect upland endangered and threatened species such as the indigo snake, peregrin falcon, grey fox, southern bald eagle, wood stork, logger-head shrike, red-cockaded woodpecker, and Kirkland's and Bachman warblers. By contrast, the well-established facilities and operations at Subase New London can continue to function with little or no adverse environmental impacts, in large part due to the almost total lack of endangered or threatened species.

[1] Lack of site specific information on existing environmental conditions at the base, the proposed locations of the various SSN operations to be moved to Kings Bay, the amount of additional ship movements anticipated, and the Navy's existing operational costs associated with the endangered species mitigation measures make it impossible to evaluate the specific impacts to endangered species and the costs associated with minimizing those impacts.



Site Number	Site Name	Category
1	Construction Battalion Unit Drum Storage Area	No Further Action
2A	Area A Landfill	Cleanup Complete, O & M Needed
[illegible]	Area A Wetlands	Further Investigation Needed
3A	Area A Downstream Watercourses	Cleanup Complete, O & M Needed
3B	Overbank Disposal Area	No Further Action
3C	Shooting Range Area	Remedy Selected, Not Implemented
4	Rubble Fill Area at Bunker A-86	No Further Action
5	Defense Reutilization and Marketing Office (DRMO)	Cleanup Complete, O & M Needed
7	Torpedo Shops	Remedy Selected, Not Implemented
8	Goss Cove Landfill	Cleanup Complete, O & M Needed
9	Oily Wastewater Tank (OT-5)	Further Investigation Needed
10	Lower Base: Fuel Tanks and Tank 54 (T)	Further Investigation Needed
11	Lower Base: Power Plant Fuel Oil Tanks	Further Investigation Needed
14	Lower Base: Building 79 Waste Oil Pit	Further Investigation Needed
14	Overbank Disposal Area Northeast	No Further Action
15	Spent Acid Storage and Disposal Area	No Further Action
16	Hospital Incinerators	No Further Action
17	Lower Base: Hazardous Materials/ Solvent Storage	Further Investigation Needed
18	Solvent Storage Area: Building 36	Further Investigation Needed
19	Lower Base: Solvent Storage Area: Building 36	Further Investigation Needed
20	Area A Weapons Center	No Further Action
21	Lower Base: Berth 16	Further Investigation Needed
22	Lower Base: Pier 43	Further Investigation Needed
23	Fuel Farm	Further Investigation Needed
24	Lower Base: Central Paint Accumulation Area	Further Investigation Needed
25	Lower Base: Classified Material Incinerator	Further Investigation Needed
	Basewide Groundwater (various sites)	Further Investigation Needed
RCRA Site	Building A-86 Container Storage Area	Further Investigation Needed

NOTE

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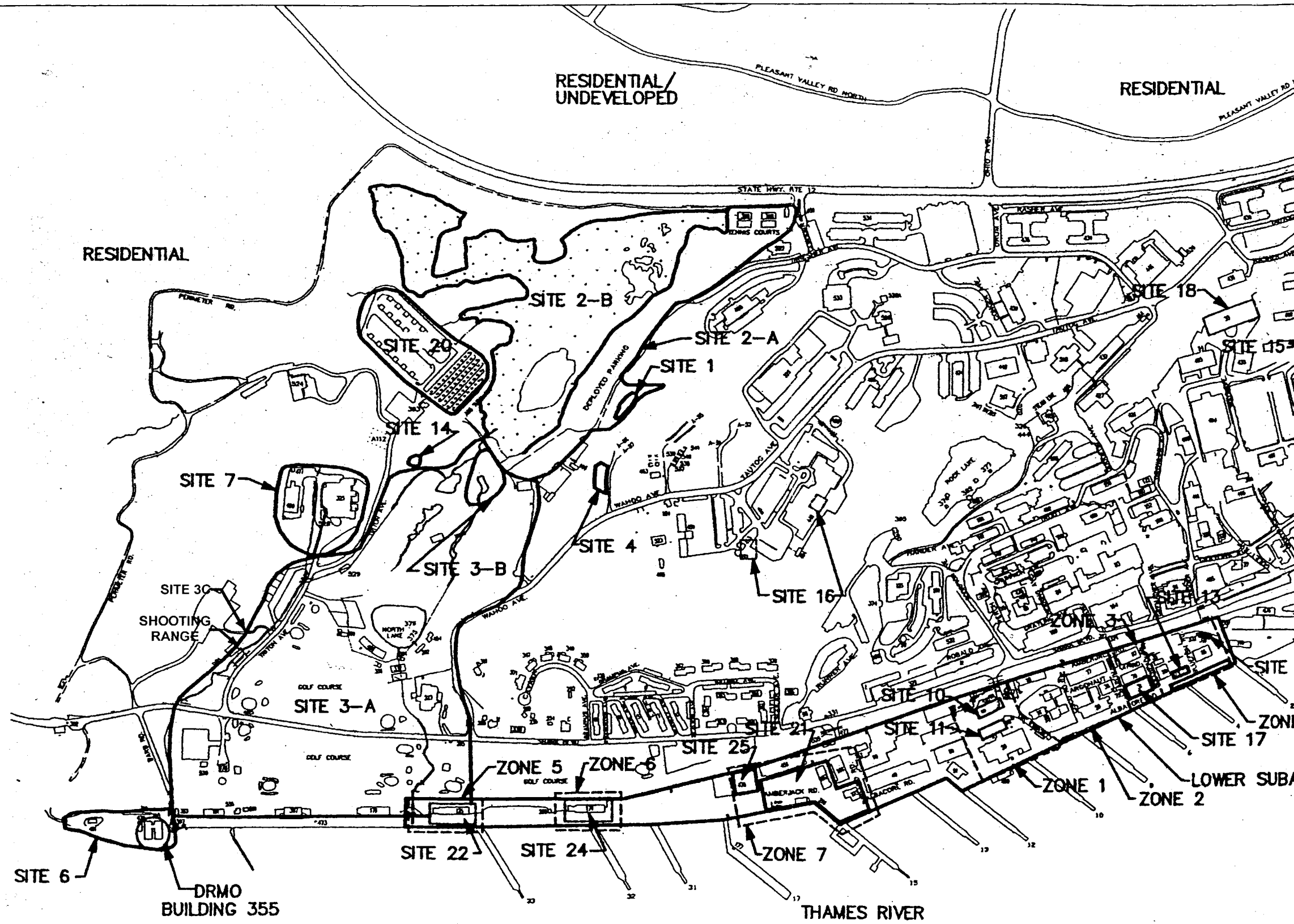

Remediation Areas
U. S. Naval Sub Base
Groton, Connecticut

Site Number	Site Name
1	Construction Battalion Unit Drum Storage Area
2A	Area A Landfill
2B	Area A Wetlands
3A	Area A Downstream Watercourses
3B	Overbank Disposal Area
3C	New Source Area
4	Rubble Fill Area at Bunker A-86
6	Defense Reutilization and Marketing Office (DRMO)
7	Torpedo Shops
8	Goss Cove Landfill
9	Oily Wastewater Tank (OT-5)
10	Lower Base- Fuel Tanks and Tank 54_H
11	Lower Base- Power Plant Fuel Oil Tanks
13	Lower Base- Building 79 Waste Oil Pit
14	Overbank Disposal Area Northeast
15	Spent Acid Storage and Disposal Area
16	Hospital Incinerators
17	Lower Base- Hazardous Materials/ Solvent Storage
18	Solvent Storage Area- Building 36
19	Lower Base- Solvent Storage Area- Building 36
20	Area A Weapons Center
21	Lower Base- Berth 16
22	Lower Base- Pier 33
23	Fuel Farm
24	Lower Base- Central Paint Accumulation Area
25	Lower Base- Classified Materials Incinerator
	Basewide Groundwater (various sites)
RCRA Site	Building A-85 Container Storage Area

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Naval Submarine Base, Groton, CT

Site Name:
Construction Battalion Unit Drum Storage Area

Site Number:
1

Site Description:
Former drum storage area on top of Area A landfill

Nature of Contamination:
Limited soil contamination from spillage or leakage from drums

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
Contaminated soil from this site consolidated under Area A landfill cap

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
None. Navy and DEP agree, included in Site 2A Area A Landfill

Cost Estimates:
None, included in Site 2A Area A Landfill

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Engineered control, direct exposure and pollutant mobility criteria do not apply

Naval Submarine Base, Groton, CT

Site Name:
Area A Landfill

Site Number:
2A

Site Description:
13 acre mixed waste landfill in operation 1963 to 1973. Received incinerator ash, battery acid, refuse and debris.

Nature of Contamination:
Volatile organics, metals, PCBs, polynuclear aromatic hydrocarbons (PAHs)

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund.

Investigation / Remediation Work Done:
Multi-layer cap completed in 1997.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Operation and maintenance of cap, ground water monitoring (22 years remain of 30 planned years monitoring). Navy institutional control will need to be converted to ELUR. Groundwater remedy will be included in Basewide groundwater operable unit.

Cost Estimates:
$2,577,240 DEP estimate for remaining 22 years of operation and maintenance including groundwater monitoring. Navy estimated $1,823,818 in 1995 for 30 years of operation and maintenance not including groundwater monitoring.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Engineered control, direct exposure and pollutant mobility criteria do not apply

Naval Submarine Base, Groton, CT

Site Name:
Area A Wetlands

Site Number:
2B

Site Description:
The site is a 23.6 acre wetland filled with dredge spoil, located immediately adjacent to the Area A Landfill. The wetlands were created in the late 1950s when approximately 1.52 million cubic yards of dredge spoils were pumped into the area from the Thames River and contained behind an earthen dike. Between 10 and 35 feet of dredge spoils underlie the wetlands. The wetlands drain via a culvert to the Area A Downstream Watercourses (Site 3B). DDT was reportedly applied to a pond in one area of the wetlands. The DDT contaminated sediment that the Navy removed from the Area A Downstream Watercourses is believed to have resulted from this application.

Nature of Contamination:
Pesticide, PCB and polynuclear aromatic hydrocarbon (PAH) contamination in soil and sediment, manganese contamination in ground water.

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation (RI) for Superfund

Investigation / Remediation Work Done:
Phase II RI completed 1997.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Feasibility study (FS) planned for 2006 or 2007. Phase II RI results indicate some removal of sediments contaminated with metals, PAHs and pesticides will be necessary, extent of removal will be determined by FS. State estimate assumes 20 acres of sediment excavated to depth of 3 feet.

Cost Estimates:
$42,106,852 for feasibility study and excavation, $1,138,000 for post-remediation groundwater monitoring (DEP estimates).

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Not enough information available to make separate estimates for remediation to residential vs. industrial/ commercial standards. However, state assumes remediation to residential direct exposure criteria would be required. Pesticide remediation levels driven by ecological standards, which are lower than human-

health based standards.

Naval Submarine Base, Groton, CT

Site Name:
Area A Downstream Watercourses

Site Number:
3A

Site Description:
Watercourses that drain from the Area A Wetlands (Site 2B) to the Thames River.

Nature of Contamination:
Pesticides and metals in soil and sediment

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
10,000 cubic yards of soil and sediment contaminated with pesticides and metals excavated in 1999 and 2000; restoration of the watercourses and associated wetlands.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Monitoring of wetland restoration and groundwater

Cost Estimates:
$404,000 DEP estimate for long term groundwater monitoring. Navy estimated $50,000 in 1998 for five years of operation and maintenance of the wetlands restoration.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation was to residential standards (to ecological standards for pesticides).

Naval Submarine Base, Groton, CT

Site Name:
Overbank Disposal Area (OBDA)

Site Number:
3B

Site Description:
Limited dump area on slope from Area A Landfill to Area A Downstream.

Nature of Contamination:
Miscellaneous debris and associated contaminated soil.

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
Debris and contaminated soil removed, consolidated under Area A Landfill cap.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
None, Navy and DEP agree included in Site 2A Area A Landfill

Cost Estimates:
None, included in Site 2A Area A Landfill

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Engineered control, direct exposure and pollutant mobility criteria do not apply

Naval Submarine Base, Groton, CT

Site Name:
New Source Area

Site Number:
3C

Site Description:
Limited dump area located within site 3A Area A downstream.

Nature of Contamination:
Empty drums, other debris, and petroleum contaminated soil.

Source of Information (e.g. Navy, DEP, etc.):
Navy feasibility study for Superfund

Investigation / Remediation Work Done:
Investigation complete.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Debris and contaminated soil to be removed. Record of decision signed November 2004.

Cost Estimates:
$592,574 DEP estimate for remediation and post-remediation monitoring

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation proposed to residential standards

Naval Submarine Base, Groton, CT

Site Name:
Rubble Fill Area at Bunker A-86

Site Number:
4

Site Description:
Limited dump area near Area A Landfill.

Nature of Contamination:
Construction debris, empty drums, and associated contaminated soil.

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation

Investigation / Remediation Work Done:
Debris and contaminated soil was removed and consolidated under the Area A Landfill cap.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
None, Navy and DEP agree included in Site 2A Area A Landfill

Cost Estimates:
None, included in Site 2 Area A Landfill

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Engineered control, direct exposure and pollutant mobility criteria do not apply

Naval Submarine Base, Groton, CT

Site Name:
Defense Reutilization and Marketing Office (DRMO)

Site Number:
6

Site Description:
Landfill and waste burning area operated from 1950 to 1969, including waste battery acid underground storage tank (UST). Currently surplus material storage.

Nature of Contamination:
Lead, polynuclear aromatic hydrocarbons (PAHs), and PCBs in soil. No significant groundwater contamination.

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund.

Investigation / Remediation Work Done:
UST and contaminated soil removed in 1995, multi-layer cap installed 1998.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Operation and maintenance of cap, long-term groundwater monitoring. Any groundwater remediation necessary would be included in basewide groundwater operable unit. Deed restriction would need to be converted to environmental land use restriction (ELUR). Still needs a final Record of Decision.

Cost Estimates:
$1,044,320 DEP estimate for long-term groundwater monitoring and operation and maintenance of the cap. Navy estimated $618,000 net present value of 30 years of monitoring in 1998 dollars

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Engineered control, direct exposure and pollutant mobility criteria do not apply

Naval Submarine Base, Groton, CT

Site Name:
Torpedo Shops

Site Number:
7

Site Description:
Torpedo maintenance shops, with former underground storage tanks (USTs)and two former septic systems.

Nature of Contamination:
Soil contaminated with solvents and polynuclear aromatic hydrocarbons (PAHs).

Source of Information (e.g. Navy, DEP, etc.):
Navy

Investigation / Remediation Work Done:
USTs removed and some contaminated soil

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
The Navy signed a record of decision for soil in September 2004. Former septic system and 1,600 yards of contaminated soil to be removed. Any groundwater remediation necessary would be included in basewide groundwater operable unit.

Cost Estimates:
$939,765 DEP estimate for remediation and post-remediation monitoring. Navy estimated $440,000 for excavation only.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation proposed to residential standards

Naval Submarine Base, Groton, CT

Site Name:
Goss Cove Landfill

Site Number:
8

Site Description:
Mixed waste landfill operated from 1946 to 1957.

Nature of Contamination:
Volatile and semi volatile organic compounds and metals in groundwater (VOCs may be from offsite source).

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
A multi-layer cap was installed in 2001. Possible volatilization of PCE in groundwater into overlying Nautilus museum was evaluated and determined not to be a concern.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Operation and maintenance of cap, long-term groundwater monitoring. Institutional control will need to be converted to ELUR. Any groundwater remediation needed will be included in basewide groundwater operable unit.

Cost Estimates:
$392,700 DEP estimate for long-term groundwater monitoring and operation and maintenance of the cap.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Engineered control, direct exposure and pollutant mobility criteria do not apply

Naval Submarine Base, Groton, CT

Site Name:
Oily Wastewater Tank OT-5

Site Number:
9

Site Description:
750,000 gallon underground storage tank used for storage of oily bilge water. Part of the Fuel Tank Farm (Site 23).

Nature of Contamination:
Petroleum (and PCBs?) in soil

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
Tank was cleaned and closed in place in 1994

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Unclear if closed to underground storage tank and/or RCRA requirements. If need, can be addressed as part of Site 23 Tank Farm and basewide groundwater operable unit.

Cost Estimates:
None, included in Site 23 and basewide groundwater operable unit

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
See site 23

Naval Submarine Base, Groton, CT

Site Name:
Lower Base Fuel Storage Tanks and Tank 54-H

Site Number:
10 (part of Zone 1, Lower Base)

Site Description:
Six diesel, lube oil, and hydraulic oil underground storage tanks, and associated pipelines

Nature of Contamination:
Polynuclear aromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPH) in soil

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
Four USTs were decommissioned, two USTs now serve as containment for newer steel tanks. Several rounds of investigation completed. Some product removed from catchbasins in area.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional investigation, excavation of petroleum contaminated soil.

Cost Estimates:
$3,142,637 DEP estimate for investigation, remediation, and groundwater monitoring (also includes site11). No Navy estimate available.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation to pollutant mobility criteria (excavation to water table). Will require environmental land use restriction for pollution remaining below the water table.

Naval Submarine Base, Groton, CT

Site Name:
Lower Base Power Plant Oil Tanks

Site Number:
11 (part of Zone 1, Lower Base)

Site Description:
Two #6 fuel oil, one waste oil, one diesel underground storage tanks (USTs), and associated pipelines

Nature of Contamination:
Polynuclear aromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPH) in soil and groundwater

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
All USTs decommissioned, three now serve as containment for newer steel USTs. Several rounds of investigation completed. Product removed from catchbasins in the area.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional investigation, excavation of petroleum contaminated soil.

Cost Estimates:
Included in cost estimate for Site 10.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
See site 10.

Naval Submarine Base, Groton, CT

Site Name:
Lower Base - Building 79 Waste Oil Pit

Site Number:
13 (Part of Lower Base Zone 4)

Site Description:
Former concrete waste oil pit in building used for maintenance of diesel engines

Nature of Contamination:
Polynuclear aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), lead in soil and groundwater

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation

Investigation / Remediation Work Done:
Pit has been sealed. Product removed from catchbasins and groundwater in area. Several rounds of investigation completed.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional soil and groundwater investigation, and soil remediation.

Cost Estimates:
$4,686,185 DEP estimate for additional investigation and soil remediation (also includes site 19). No Navy estimate available.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation to pollutant mobility criteria (excavation to water table). Will require environmental land use restriction for pollution remaining below the water table

Naval Submarine Base, Groton, CT

Site Name:
Overbank Disposal Area Northeast (OBDANE)

Site Number:
14

Site Description:
Limited dump area in northern portion of base.

Nature of Contamination:
Volatile organic compounds, polynuclear aromatic hydrocarbons (PAHs), pesticides, arsenic, and lead in soil.

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
270 tons of debris and contaminated soil were removed and disposed of off-site in 2001.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Navy and DEP agree no additional soil remediation needed. Any groundwater remediation necessary would be included in basewide groundwater operable unit.

Cost Estimates:
None, included in basewide groundwater operable unit

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Soil remaining at the site meets the direct exposure and pollutant mobility criteria.

Naval Submarine Base, Groton, CT

Site Name:
Spent Acid Storage and Disposal Area (SASDA)

Site Number:
15

Site Description:
Former waste battery acid underground storage tank (UST).

Nature of Contamination:
Lead in soil

Source of Information (e.g. Navy, DEP, etc.):
Navy

Investigation / Remediation Work Done:
UST and 318 tons of contaminated soil removed in 1995.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Navy and DEP agree no additional soil remediation needed. Any groundwater remediation necessary would be included in basewide groundwater operable unit.

Cost Estimates:
None, included in basewide groundwater operable unit.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
DEP sampled and confirmed that remaining soil met pollutant mobility criteria.

Naval Submarine Base, Groton, CT

Site Name:
Hospital Incinerators

Site Number:
16

Site Description:
Incinerator operated by the base hospital at two locations during the 1980s to destroy medical waste and medical records.

Nature of Contamination:

Source of Information (e.g. Navy, DEP, etc.):
Navy

Investigation / Remediation Work Done:
The Navy demonstrated compliance with the remediation standard regulation soil criteria at this site.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Navy and DEP agree no additional soil remediation needed. Any groundwater remediation necessary would be included in basewide groundwater operable unit

Cost Estimates:
$0

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Complied with residential standards

Naval Submarine Base, Groton, CT

Site Name:
Hazardous Materials/Solvent Storage Area (Building 31)

Site Number:
17 (part of Lower Base Zone 3)

Site Description:
Former battery overhaul shop and hazardous waste storage building

Nature of Contamination:
Lead, polynuclear aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH) in soil and groundwater

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
Building has been removed, concrete slab remains under parking lot with stabilized soil underneath it

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional investigation of PAH and TPH contamination, additional soil remediation.

Cost Estimates:
$1,487,605 DEP estimate for additional investigation and soil remediation. No Navy estimate available.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation to pollutant mobility criteria (excavation to water table). Assumes slab and stabilized soil remain in place. Will require environmental land use restriction for pollution remaining below the water table

Naval Submarine Base, Groton, CT

Site Name:
Solvent Storage Area (Building 33)

Site Number:
18

Site Description:
Former solvent storage area in the southern portion of the base.

Nature of Contamination:

Source of Information (e.g. Navy, DEP, etc.):
Navy

Investigation / Remediation Work Done:
Limited geoprobe investigation with five borings and three temporary wells

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Possible additional investigation - solvents in soil and groundwater not far from this site in the tank farm and spent acid storage and disposal area. Navy assumes no further action.

Cost Estimates:
$110,425 DEP estimate for additional investigation. Ongoing monitoring if necessary would be part of basewide groundwater operable unit. Navy assumes no further action.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation may not be necessary depending on outcome of additional investigation

Naval Submarine Base, Groton, CT

Site Name:
Solvent Storage Area (Building 316)

Site Number:
19 (part of Zone 4, Lower Base)

Site Description:
Building formerly used for solvent storage

Nature of Contamination:
Lead, polynuclear aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH) in soil and groundwater

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
Several rounds of investigation completed. Product removed from catchbasins and groundwater in area.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional soil and groundwater investigation needed.

Cost Estimates:
Included in site 13

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
see Site 13

Naval Submarine Base, Groton, CT

Site Name:
Area A Weapons Center

Site Number:
20

Site Description:
Site used for storage & maintenance of torpedoes & other weapons. Since 1990, Navy has been investigating the extent & degree of contamination. ROD was signed in 6/2000.

Nature of Contamination:

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
Approximately 200 cy of contaminated soil was removed from the site.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Navy and DEP agree no further soil remediation needed. Any groundwater remediation necessary would be included in basewide groundwater operable unit.

Cost Estimates:
$0

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):

Naval Submarine Base, Groton, CT

Site Name:
Berth 16

Site Number:
21 (part of Zone 7, Lower Base)

Site Description:
Former incinerator, diesel underground storage tank (UST), and diesel pipeline

Nature of Contamination:
Polynuclear aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), lead in soil and groundwater

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
Several rounds of investigation completed. The UST has been removed and the pipeline decommissioned.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional investigation and soil remediation

Cost Estimates:
$6,748,010 DEP estimate for additional investigation, remediation and post-remediation monitoring. Also includes site 25.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation to pollutant mobility criteria (excavation to water table). Will require environmental land use restriction for pollution remaining below the water table

Naval Submarine Base, Groton, CT

Site Name:
Pier 33

Site Number:
22 (Zone 5 Lower Base)

Site Description:
Former indoor battery acid aboveground storage tanks (ASTs), associated underground piping, fuel oil underground storage tank (UST)

Nature of Contamination:
Total petroleum hydrocarbons (TPH) and lead in soil

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
At least one round of investigation completed. ASTs, piping and UST have been removed.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional investigation, soil remediation

Cost Estimates:
$870,778 DEP estimate for additional investigation, soil remediation and post-remediation monitoring

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Industrial/commercial standards.

Naval Submarine Base, Groton, CT

Site Name:
Fuel Tank Farm

Site Number:
23

Site Description:
Nine 750,000-gallon fuel oil, waste oil and diesel underground storage tanks (USTs).

Nature of Contamination:
Petroleum contaminated soil and free product

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
USTs have been closed in place, some soil remediation and removal of free product. Numerous rounds of investigation have been conducted.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional investigation needed, soil remediation and possibly removal of free product. Navy assumed no further action.

Cost Estimates:
$190,355 DEP estimate for additional investigation. $650,000 DEP estimate for soil remediation and free product recovery.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
DEP estimate is for remediation to residential standards.

Naval Submarine Base, Groton, CT

Site Name:
Central Paint Accumulation Area (Building 174)

Site Number:
24 (Zone 6 Lower Base)

Site Description:
Former boat sandblasting and painting, and storage of lead ballast

Nature of Contamination:
Total petroleum hydrocarbons (TPH) in soil, lead in sediment

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
One round of investigation

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional investigation and soil remediation

Cost Estimates:
$268,111 DEP estimate for additional investigation, soil remediation and post-remediation monitoring

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Industrial/commercial criteria

Naval Submarine Base, Groton, CT

Site Name:
Lower Subase Classified Materials Incinerator

Site Number:
25 (part of Zone 7 Lower Base)

Site Description:
Former incinerator

Nature of Contamination:
Polynuclear aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), lead in soil and groundwater

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
Several rounds of investigation completed

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional investigation, soil remediation

Cost Estimates:
Included in Site 21

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
see Site 21

Naval Submarine Base, Groton, CT

Site Name:
Zone 2 Lower Base

Site Number:
none

Site Description:
Diesel and fuel oil pipelines through part of lower base not included in numbered sites

Nature of Contamination:
Lead, polynuclear aromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPH) in soil, from sources within this zone and from adjacent numbered sites

Source of Information (e.g. Navy, DEP, etc.):
Navy remedial investigation for Superfund

Investigation / Remediation Work Done:
at least one round of investigation

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
additional investigation, soil remediation

Cost Estimates:
$1,333,369 DEP estimate for investigation, soil remediation and post-remediation monitoring

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation to pollutant mobility criteria. Environmental land use restriction will be needed for pollution remaining below water table.

Naval Submarine Base, Groton, CT

Site Name:
Radiological contamination

Site Number:
none

Site Description:
Various locations and areas at the base where radiological materials were used, including nuclear propulsion, general nuclear materials usage, and the possibility of the historical storage of nuclear weapons.

Nature of Contamination:
Radiological

Source of Information (e.g. Navy, DEP, etc.):
1997 Historical Radiological Assessment (HRA) done by the Navy, plus DEP records regarding activities at the Sub Base

Investigation / Remediation Work Done:
1997 HRA was inadequate. Although anecdotal information indicates that some radiological releases have been addressed historically, it appears that all radiological issues have not been addressed as part of the CERCLA related remediation that is underway.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
(1) Revised Historical Radiological Assessment, Decommissioning Plan, Dose Modeling, Characterization Survey including Thames River Final Status Survey (2) Final Remediation

Cost Estimates:
(1) $25 million (2) $6.51 million (3) Total 31.51 million Based on a comparison to similar work done at other nuclear facilities, considering factors such as the size of the site, number of buildings where radiological materials were used, types of materials used and length of usage

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Suitable for unrestricted use (note that the remediation standard regulations do not address radiological contamination)

Naval Submarine Base, Groton, CT

Site Name:
Aboveground and underground petroleum storage tanks (other than tank farm site 23 and power plant tanks site 11)

Site Number:
none

Site Description:
Active aboveground storage tanks (ASTS) and underground storage tanks (USTs), previously closed USTs

Nature of Contamination:
Petroleum contamination in soil and groundwater

Source of Information (e.g. Navy, DEP, etc.):
Navy tank inventory

Investigation / Remediation Work Done:
Some locations have been investigated and remediated; others unknown

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional investigation, proper closure, potentially soil and groundwater remediation

Cost Estimates:
$10,120,000, based on DEP and EPA estimates of general UST failure rates and closure and cleanup costs

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation to residential standards

Naval Submarine Base, Groton, CT

Site Name:
Off-base underground petroleum storage tanks at Navy housing and other facilities, including a former gas station

Site Number:
none

Site Description:
Active and historic underground storage tanks (USTs)

Nature of Contamination:
Petroleum contamination in soil and groundwater

Source of Information (e.g. Navy, DEP, etc.):
Navy tank inventory

Investigation / Remediation Work Done:
Some locations have been investigated and remediated; others unknown

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Additional investigation, proper closure, potentially soil and groundwater remediation

Cost Estimates:
$2,010,000, based on DEP and EPA estimates of general UST failure rates and closure and cleanup costs

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
Remediation to residential standards

Naval Submarine Base, Groton, CT

Site Name:

Various RCRA Sites:

Permitted RCRA TSDF Permit No. DEP/HWM-095-004 (RCRA TSDF Closure Site)

Building A-85 Container Storage Area and Building A-86 (a.k.a. A-87) Container Storage Area Former RCRA TSDFs (RCRA TSDF Closure Site)

RCRA Generator Storage Areas (RCRA Generator Closure Site)

Site Number:

none

Site Description:

The treatment, storage and disposal facility (TSDF) was issued a RCRA permit to operate in April 2003. The permit will expire in 2008.

The two former TSDF container storage areas (A-85 and A-86/87) were reportedly closed prior to the Department's approval of a closure plan. The closure activities were performed "at risk" (meaning without approval). The status of closure certifications has not been confirmed to date.

According to the Navy and CT DEP sources, there are 134 hazardous waste generator accumulation areas at the Submarine Base. Some of these locations include storage pads up to 7,400 square feet in area, entire buildings, and various storage tanks with aboveground and underground piping. Since these are waste accumulation areas for less than 90 days, each area must undergo generator closure pursuant to RCRA requirements.

Nature of Contamination:

Specific contamination is unknown, but these are potential hazardous waste release areas. It is estimated that approximately 20% of the generator storage sites would require soil and/or groundwater remediation.Typical contamination constituents may include, but not limited to, volatile organics, semi-volatile organics, heavy metals, pesticides, PCBs, and total petroleum hydrocarbons.

Source of Information (e.g. Navy, DEP, etc.):

Combination of Navy and CT DEP

Investigation / Remediation Work Done:

None documented to date

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Removal and disposal of hazardous wastes or hazardous waste constituents; decontamination of equipment, structures and soil in accordance with RCRA TSDF and generator closure requirements.

Cost Estimates:
$17,000,056

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
CT DEP Residential Direct Exposure Criteria.

Naval Submarine Base, Groton, CT

Site Name:
Polychlorinated Biphenyls (PCBs)

Site Number:
none

Site Description:
Transformer locations base-wide which have had PCBs.

Nature of Contamination:
PCB equipment and releases from leaking transformers to surrounding media such as soil, concrete, asphalt, wood, sediment, surface water and the like.

Source of Information (e.g. Navy, DEP, etc.):
DEP inspections and spill reports, documentation provided by the Navy.

Investigation / Remediation Work Done:
Unknown

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Characterization sampling to determine limits of each release, remove contaminated media asphalt, concrete, wood, and excavate contaminated soil and sediment, and perform post-cleanup sampling and monitoring to confirm effectiveness.

Cost Estimates:
$652,147

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
PCB standards 10ppm industrial/commercial and 1ppm residential for solids, 0.5ppb surface water protection and GA groundwater - per combination of CT RSRs and 40 CFR 761.

Naval Submarine Base, Groton, CT

Site Name:
Basewide pesticide application at buildings

Site Number:
none

Site Description:
Base-wide, pesticide application to soils surrounding various buildings.

Nature of Contamination:
Historic use of synthetic organic pesticides.

Source of Information (e.g. Navy, DEP, etc.):
None available from Navy. DEP estimate based on experience at other sites.

Investigation / Remediation Work Done:
None for historic use of pesticide application at the perimeter of Base buildings. Except for the application of pesticides at golf course, which is done by Navy personnel, the application of pesticides at the Base is contracted out to a private pesticide applicator. That has been the Navy's practice for approximately 10 years.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Conduct a Phase II and III investigation for the presence of synthetic organic pesticides at approximately 200 buildings at the Base. Assuming soil extending five feet laterally and four feet deep from the perimeter of all buildings exceeds direct exposure criteria, soil may need to be excavated to an acceptable level and back filled with clean soil.

Cost Estimates:
For each of the 200 buildings, assume $2,000.00/building for Phase II and III work including soil sampling, lab analyses, labor, and mobilizing a Geoprobe. At $2,000/building the cost for the Phase II and III work is estimated at $400,000.00. Assuming a cost estimate for soil excavation,disposal and backfill at $140,000/building, soil remediation costs are estimated to be $28 million dollars for the 200 buildings. Adding a 25% contingency, the total cost is estimated at $35 million.

The total cost for the Phase II and III work and soil remediation is estimated at $28.4 million dollars.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
DEP estimates assume remediation to residential direct exposure criteria.

Naval Submarine Base, Groton, CT

Site Name:
asbestos in buildings and other structures

Site Number:
none

Site Description:
Base-wide, absestos in various buildings, above ground pipes, underground steam tunnels and other structures.

Nature of Contamination:
Asbestos containing materials (ACM), asbestos containing building materials (ACBM)

Source of Information (e.g. Navy, DEP, etc.):
DEP review of Navy asbestos surveys

Investigation / Remediation Work Done:
AHERA style asbestos surveys have been completed for each habitable structure. Non-habitable structures have not been surveyed. AHERA surveys identify asbestos that may be disturbed in day to day operations, but do not typically identify asbestos in normally inaccessible locations. In a demolition situation, NESHAP (National Emissions Standards for Hazardous Air Pollutants)-compliant asbestos surveys are required. These are destructive in nature and are intended to locate asbestos containing materials that may be a source of air contamination if subjected to the forces of demolition.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
If no buildings are slated for demolition, then no additional work is needed. If demolitions are scheduled, then supplemental NESHAP-compliant surveys need to be completed for each habitable structure slated for demolition or renovation. For non-habitable structures scheduled for demolition, complete NESHAP-compliant surveys need to be done for each structure that has not previously been surveyed. This includes items such as above ground steam pipes, underground steam tunnels, above ground storage tank installations, freestanding or buried electrical vaults, etc.

Cost Estimates:

For each building slated for demolition:

Figure $500 to provide supplemental NESHAP-compliant surveys for each habitable structure. This figure is based on one person and one day of labor per habitable structure. Since there are around 200 buildings, the cost to provide supplemental NESHAP compliant surveys for every building would be around $100,000. This includes allowance for some sampling and possibly some removal.

It would be difficult to estimate the cost involved in surveying non-habitable structures, since there did not appear to be a comprehensive survey of those locations. The task includes compiling a list of possible survey locations, the actual survey (to include sampling), and reporting. Based on 10 days labor (3 days research, 5 days survey, 2 days reporting) at $500 per day, with a sampling allowance of $2500, this item is loosely estimated at about $7500.

These estimates do not include the cost of abatement of asbestos found as a result of the surveys.

For the purpose of estimating asbestos abatement costs, a figure of $3.00/square foot and $5.00/square foot was used to calculate asbestos removal costs for office/residential and industrial type buildings at the base, respectively. It was assumed that 20% or 532,000 square feet of total building area at the Base comprises industrial type buildings and 80% or 2,128,000 square feet comprises office/residential type buildings. Based on these figures, it is estimated that asbestos removal costs for industrial buildings and office/residential buildings at the base are @ $2.66 million and $6.4 million, respectively. Adding a 25% contingency to the aforementioned costs brings the total estimate for asbestos removal at Base buildings to $11.30 million. This estimate does not include buildings constructed after 1988 and presumably do not contain ACM.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):

Federal NESHAP standards. See discussion above.

Naval Submarine Base, Groton, CT

Site Name:
Sitewide Groundwater

Site Number:
Various sites

Site Description:
The Navy is addressing groundwater throughout the lower base together with soil. The Navy is addressing groundwater in the upper base separately from soil. The Navy has divided groundwater in the upper base into northern, central, and southern zones. All except one of the numbered installation restoration sites are located in the northern or southern zones. All groundwater evaluations to date have focused on the northern and southern zones.

Nature of Contamination:
Low concentrations of chlorinated solvents, metals and petroleum compounds are present in groundwater in the northern and southern portions of the upper base. Little information is available regarding groundwater in the central portion of the upper base. Chlorinated solvents from offsite source in groundwater at Goss Cove Landfill.

Source of Information (e.g. Navy, DEP, etc.):
Navy

Investigation / Remediation Work Done:
Remedial Investigation and feasibility study complete for upper base. Monitored natural attenuation with institutional controls to prevent use of groundwater selected as interim remedy for Area A Downstream Watercourses (Site 3A) and Torpedo Shops (Site 7). No further action selected as interim remedy for Overbank Disposal Area Northeast (Site 14), Spent Acid Storage and Disposal Facility (Site 15), Solvent Storage Area (Site 18), and Area A Weapons Center (Site 20). The Navy continues to monitor groundwater at the Area A Landfill (Site 2A), Defense Reutilization and Marketing Office (Site 6), and the Goss Cove Landfill (Site 8). No monitoring wells in central zone of base.

Work Still Needed (e.g. excavation, FS, long term monitoring, etc.):
Navy to continue groundwater monitoring at Sites 2A, 6, and 8. Navy plans to select interim groundwater remedies for remaining sites by 2007. Navy will select a final remedy for all sites once soil remediation has been completed throughout the base. All studies have focused on groundwater contamination associated with numbered installation restoration sites. Navy has not considered possible ground water contamination associated with RCRA sites, PCBs, etc. Additional investigation of groundwater in central zone of base will be needed to determine whether groundwater contamination has resulted from these sources.

Cost Estimates:
Navy estimates cost of monitored natural attenuation with institutional controls for Sites 3A and 7 at $118,900 for capital costs and $504,400 for operations and maintenance (net present worth). The Navy has not provided cost estimates for addressing groundwater in the remaining portions of the upper base.

Industrial/ commercial and residential standards, including source/ basis for estimate (Navy, DEP, etc.):
DEP groundwater standards for GB area include surface water protection criteria and volatilization criteria.

Environmental Resource Impacts for BRAC's Ten Resource Areas

Environmental Resource Area	Naval Submarine Base New London (Retaining Base)	Norfolk Naval Station, VA (Gaining Installation)	Kings Bay Naval Submarine Base, GA (Gaining Installation)
Air Quality	Facility has required stationary source (NSR) and facility (Title V) air permits in place for regulated activities.[14] Transportation conformity budgets already accounted for in air quality planning.[14]	Facility would have to seek new permits from permitting authority for activities affecting air resources.[14] Transportation conformity may have to be evaluated based on attainment status of the air quality control region.[14]	Facility would have to seek new permits from permitting authority for activities affecting air resources[14] Attainment for all criteria pollutants.[14]
Cultural/ Archeological/ Tribal Resources	Strong history of submarining at the subase positive impact to sailors stationed there Nautilus Museum		By 1980, 27 archeological sites on the base were identified for possible placement on the National Register of Historic Places.[2] 21 archaeological sites that have been identified as eligible for inclusion in the National Register of Historic Places[2]
Dredging	Thames River is a glacially-produced bedrock gorge confining over 100 feet of glacial and post-glacial fill. Most of river contains fine sand and silt from inland washing. Course gravel and rock exists along the banks.[6] Sediments contained varying concentrations of metals, polyaromatic hydrocarbons (PAH), pesticides, polychlorinated biphenyls PCBs) and other chemicals above naturally occurring background levels. PAHs are the most consistently encountered chemicals.[2] Limited water quality data exists for the Thames River near the subase. However, one sample at Pier 32 in 1991 revealed no detectable PAHs and low metal levels. Ambient concentrations of	Thimble Shoal must be dredged every 3 years.[2] Harbor Entrance needs dredging every 18 months.[2] Between piers 22 and 23, dredging every four years.[2] Frequent dredging activities also occur from the piers to the ocean.[2] Disposal at materials management area (MMA).[2] Concern about capability to continually expand Craney Island MMA.[2] (1995) Alternatives are limited.[2] (1995) Long term is problematic.[2] (1995) Sediments are generally not suitable for open water disposal and must be placed in an upland Confined Disposal Facility	Annually maintenance dredge 1 million cubic yards.[2] Frequent dredging causes disruptions.[2] Georgia's DNR concerned that increased dredging at Site 6 may facilitate saltwater intrusion into the ground water system[2] Has Navy-owned dredge sediment disposal facilities.[2] Sediment specific testing not needed.[2] Have on-going dredging permit.[2] Dredging would have minimal impact (for Seawolf).[2] There are 3 upland Confined Disposal Facilities (CDF) in current use with an estimated lifespan of 30

Environmental Resource Area	Naval Submarine Base New London (Retaining Base)	Norfolk Naval Station, VA (Gaining Installation)	Kings Bay Naval Submarine Base, GA (Gaining installation)
	several metals approached or slightly exceeded EPA water quality criteria[6] Siltation and shoaling rates are insignificant; need for periodic maintenance dredging is infrequent.[2] When needed, spawning season windows minimize damage.[2] Maintenance dredging is planned and authorized at New London around the piers with adequate disposal options for the sediments at the nearby New London Disposal Site (NLDS) open water site and within Thames River Confined Aquatic Disposal (CAD) cells. Long intervals between maintenance dredging events minimizes demands on sediment management options, extending availability of disposal options. In 1995 the estimated remaining capacity of the NLDS was 18 million cy, approximately 46 yrs at the long term average disposal of 370, 000 cy/ yr. Based upon disposal use over the past 10 yrs that has averaged less than half that value, at least 44 yrs of use is still available at NLDS[10]	(CDF) at the Craney Island Materials Management Area. Craney Island currently must be managed in an increasingly intensive manner for dewatering and placement of sediment to maximize capacity; currently estimates make Craney Island available to 2020. Proposed plans to expand Craney Island will result in significant direct impacts to existing shallow water habitats.[2] (as of 1995)	years in 2005. To minimize sediment volume placement in the CDFS to prolong usable life, sandy sediments suitable for beach nourishment are placed on GA & FL beaches.[10] **Dredging Conditions[15]** Hopper dredging shall be completed during months of Dec. through March due to sea turtle abundance (can be adjusted under certain conditions) ACOE shall arrange with NMFS approved observers aboard hopper dredges to monitor spoils, overflow, screening and dragheads for sea turtles Hopper dredge shall be equipped with screening and baskets to better monitor the intake and overflow of dredged materials for sea turtles and remains ACOE and NMFS shall develop a protocol for testing and evaluation of new draghead designs and/or deflector devices If project commences during sea turtle nesting season (April 1 through October 30, then applicant must initiate a sea turtle nest relocation program 60 days prior to work, only to be conducted by personnel with prior experience and training Nest surveys must be conducted daily between sunrise and 9 a.m. each day Nourished beaches shall be plowed to a depth of at least

Environmental Resource Area	Naval Submarine Base New London (Retaining Base)	Norfolk Naval Station, VA (Gaining Installation)	Kings Bay Naval Submarine Base, GA (Gaining installation)
			36 inches immediately following completion of beach nourishment Escarpments in excess of 12 inches extending more than 90 feet in length and exceeding an average CPU at the 6,12, or 18 inch test depths shall be mechanically leveled to the natural beach contour prior to May 1 Material disposed ion the project site must meet FL DEP standards for beach quality sand suitable for sea turtle nesting If turtle nest is dug up, person responsible for nest relocation must be notified for removal of nest to beach hatchery. Top of each egg must be marked with a nontoxic felt-tipped pen and individually and gently placed in 2-3 inches of moist sand in a rigged-walled container, being careful not to change the axis of the eggs. Eggs must be covered with fine nylon mesh and then 2-3 inches of moist sand, shaded from sun, immediately transported to hatchery. Eggs shall be placed one at a time in the artificial nest chamber, while ensuring the orientation of each egg remains as in the natural nest. Reports shall be submitted to FWS Permittee shall instruct all personnel of potential presence of manatees and the need to avoid collisions Permittee shall advise personnel of civil and

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			criminal penalties for harming, harassing or killing manatees All vessels shall operate at "no wake/idle" speeds at all times while in water where draft of vessel provides less than four feet clearance from the bottom If manatee sighted within 100 feet of area, all appropriate precautions shall be implemented including ceasing activities if appropriate Any collision and/or injury to a manatee shall be reported immediately A log detailing sightings, collisions and injuries to manatees shall be maintained
Land Use Constraints/ Sensitive Resource Areas	**Quality of Life** Strong community, political and civilian industrial support.[2] Submarine warfare focus and as a result is uniquely responsive to Submarine Force family issues and needs of single submariners.[2] Large maintenance and training infrastructure[2] Minimal waiting for housing[2] Personnel support services (child development centers, disbursing, administrative, legal, family service center, Commissaries, Navy	**Quality of Life** Substantial waiting lists for Navy housing [2] Personnel services mixed between afloat support ships and ashore facilities[2] Medical and dental services located 15 minutes away. Naval Hospital Portsmouth located 20 minutes away[2] Dense population of Norfolk also means traffic congestion and other discomforts[2]	**Quality of Life** Substantial waiting lists for Navy housing[2] Medical, dental clinic within 15 minutes of waterfront, more detailed services from local civilian carriers[2] Current shortages in on-base housing, would be exacerbated with intro of installation expansion, long driving commutes possible[2] Kings Bay has limited infrastructure, on the base itself, and very, very limited infrastructure in the county in terms of roads, schools, housing[16]

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	exchange) are fully developed ashore, no need for expansion[2] Naval hospital on base, medial and dental services on waterfront, a short walk[2] Having available housing on-base is an asset to minimize isolation of family members and develop a sense of community, particularly during times when crews are at sea.[2] New London's advantage – specialization as a subase, availability of housing on-base[2]		
	Strategic Situation Shorter distance to Gibralter and the North Atlantic an advantage[2] The regional co-location of operating and development commands, warfare centers, research, medical and training facilities provides unsurpassed synergism which promotes an efficient and cost-effective submarine support community.[2] Proximity of Electric Boat a major plus – New London has a readiness advantage stemming from its proximity to EB; submarine maintenance can be handled more quickly and efficiently[2] Ability of the submarine manufacturer/maintainer to work with and exchange ideas and lessons learned with the submarine operators enhances the readiness and effectiveness	**Strategic Situation** Splitting up submarine tactical development, research, medical practices development and training between two installations.[2] ***(extrapolated from FEIS)*** Compromises operational efficiency due to significant expenditure of out of area travel and staff liaisons required between the two bases.[2] ***(extrapolated from FEIS)*** Cruise missiles and torpedoes would be transported to Yorktown, VA for maintenance and long-term storage[2] Magazines for non-missile storage not available (1995 – still true?)[2] Ordnance handling event waivers of explosive safety criteria are required for pierside ordnance handling[2] Newport News Shipyard has some planning responsibilities	**Strategic Situation** Splitting of facilities dilutes the focus on Strategic Systems operation and efficiency.[2] ***(extrapolated from FEIS)*** Compromises operational efficiency due to significant expenditure of out of area travel and staff liaisons required between the two bases.[2] ***(extrapolated from FEIS)*** Ordnance storage for the Seawolf would be provided at the nearest off-base facility with weapons transported to Kings Bay when required (i.e., not readily available). Potentially could expand the weapons storage site but costs not determined.[2]

Environmental Resource Area	Naval Submarine Base New London (Retaining Base)	Norfolk Naval Station, VA (Gaining Installation)	Kings Bay Naval Submarine Base, GA (Gaining installation)
	of the force and the performance of the submarines themselves	but have to liaison with Electric Boat[2]	
	Hurricanes From 1886 – 1996 (111 year period), were **84 tropical storms and hurricanes** that threatened the Groton/New London area (came within 180 nmi of GT/NL) An average of **.76 tropical storms or hurricanes per year**[11] Within 180 nautical miles of Groton/New London, there is an average of .76 tropical storms and hurricanes per year[11] Subase at New London experienced a major storm surge of 10.5 feet National Geodetic Vertical Datum (NGVD) (occurring during a nearly high tide) during the devastating hurricane of 1938[11] (At its peak intensity, the '38 Hurricane was a category 5 storm on the Saffir-Simpson Scale with maximum sustained winds of 161 mph[12]) Subase is located six miles north of the mouth of the Thames River, offering it considerable protection from the effects of a hurricane or tropical storm[6]	**Hurricanes** From 1886 – 1997 (112 year period), were **143 tropical storms and hurricanes** that threatened the Norfolk area (came within 180 nmi of Norfolk) An average of **1.27 tropical storms or hurricanes per year**[11]	**Hurricanes** From 1886 – 2002 (117 year period), were **164 tropical storms** and hurricanes that threatened Kings Bay area (came within 180 nmi of Kings Bay) An average of **1.4 tropical storms or hurricanes per year**[11] Within 180 nautical miles (nmi) of Kings Bay, there is an average of 1.4 tropical storms and hurricanes per year[11] Models for Kings Bay predict a category 5 storm could result in a storm surge of 23.2-feet NGVD at Kings Bay[11] Extremely vulnerable to the effects of a hurricane strike[2]. Development of a hurricane anchorage is precluded by the poor holding quality of the bottom in the sounds[2] The deeply cut access channel would be subject to sudden shoaling under certain circumstances of a hurricane strike[2]
			Natural resources abundant in this 16,000 acre area.[2] Important habitat for many species of wildlife and vegetation[2] Naval Submarine Base Kings Bay is home to a variety of animals, including: 229

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			birds, 68 mammals, 67 reptiles (5 poisonous snakes), and 37 amphibians. Twenty of these species are threatened or endangered.[2] Kings Bay, Georgia lies in marshy, flat terrain behind a long, low barrier island which separates it from the open ocean.[2] Subase located among valuable marsh (4,000 acres are protected wetlands) and many acres of forested habitat[1] 3,000 acres of saltwater marsh and tidal streams[1] Some construction needed for stowage for missiles and non-missile ordnance[2] Construction of new magazine needed[2] Submarines reach their base at Kings Bay via a long channel which has been cut through the shallow coastal shelf and muddy tidal sound. The only natural shelter from winds is provided by forest Additional demands would require new development.[2] Additional personnel associated with Seawolf would seriously overload personnel support facilities on the Subase as they currently exist. A significant financial impact upon the Subase is identified with respect to providing additional support facilities.[2] The additional personnel

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			would add incrementally to, and aggravate, problems associated with inadequate facilities[2] **Land use constraints** Approx 80% of subase land is owned in fee, 20% is leased[2] Base is very flat (slopes of 0.2-1.0%) with surface runoff being slow[2] 75% of soils on the subase maintain a seasonally high water table; rainwater tends to pond in low spots throughout the base during and after storm events[2] Overall region is rural.[2] Homeporting of the Seawolf would have required joint utilization of the TRF (the largest command associated with the Trident) support facilities as well as TRF personnel.[2] The Seawolf possibly requires the extension of a pier, a sizable construction project. Primary estimates for improvement costs was $100,000 to $500,000 (in 1995). There may be no other areas at Kings Bay considered suitable for the Seawolf. [2] Pier at layberth 3 does not have sufficient length or width to accommodate the third Seawolf. At a minimum, additional construction could be required depending on the structural capacity needed. Costs could total up to $500,000 to upgrade the pier.[2]

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			Subase would also need new berthing camels designed to accommodate the Seawolf, additional towed array barge, sail staging, Type 8J periscope, Seawolf specific masts and antennas, and a fifth specialty tug.[2]
Marine Mammals/ Marine Resources/ Marine Sanctuaries	Primarily impacted resources would be fish, shellfish, aquatic habitat and benthos (Seawolf)[2] Some short term adverse impacts adverse impacts to natural resources.[2] Spawning season windows will minimize damage.[2] Used by resident and migratory fish as spawning and nursery area. Species present include: winter flounder windowpane flounder mummichog striped killifish[2] Can be feeding area for long-range coastal migrants including menhaden, bluefish, striped base, mackerel, tautog, weakfish, porgy, and whiting.[2] No commercial finfish fishery but intense recreational fishing.[2] Lobster – commercial and recreational.[2] Oyster beds in area of Mamacoke Island and in Ledyard[2] Hardshell clams present. Due to high fecal cloiform levels, some shellfish relaying is done.[2]	Seasonal dredging windows recommended.[2] Threatened loggerhead and green, and the endangered Kemp's ridley sea turtles known to forage in Chesapeake Bay, though not generally observed in the vicinity of the Norfolk piers[2] No threatened or endangered freshwater fish or invertebrates[2]	Species under jurisdiction of NMFS include: Five species of sea turtles - see **Threatened &Endangered Species/Critical Habitat** section Right whale also inhabits the area – see **Threatened &Endangered Species/Critical Habitat** section Manatees which are federally endangered are in the area – see **Threatened &Endangered Species/Critical Habitat** section The FL/GA calving ground (only known right whale calving area) is designated as critical habitat for the right whale (Kings Bay is in this area)[2] **Shortnose sturgeon** has been observed historically in Cumberland Island; requires a Dec 15 – Feb 15 dredge window - see **Threatened &Endangered Species/Critical Habitat** section

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Noise	Current noise and vibration levels are minimal, typical of those expected with on-going activities and operations[2] Primary source is traffic and on-going construction activities[2]	Noise levels vary greatly throughout the year[2] Submarine tenders handle intermediate maintenance operations which involve some noise producing activities[2]	Noise levels at subase are typical of those normally found at other bases. Industrial-type activities are localized, zoned away from residential/recreational uses. Have adequate buffers.[2]
Threatened & Endangered Species/ Critical Habitat	No known state or federally-listed threatened or endangered species in the Thames River[2] Occurrence of leatherback turtle and loggerhead turtle (both Federally threatened) in Long Island Sound is rare to uncommon[6] Peregrine falcon frequents area from time to time[6 7]	Birds observed on and around Craney Island: Two subspecies of **peregrine falcon**, one federally listed as endangered, one as threatened, observed in area of Craney Island[2] **Bald Eagle** – federally endangered are observed as transients[2] **Piping plover** – federally threatened, have nested on Craney Island[2] **Wilson's lover** – state endangered, nesting population present[2] **Least tern** – species of special concern in VA, nests on shoreline of Craney Island disposal site; is given special protection by ACOE during nesting season[2] Turtles – federally threatened **loggerhead** and **green**, federally endangered **leatherback** and **Kemp's ridley** are observed in Chesapeake Bay[2] Juvenile loggerheads and Kemp's ridley migrate into the Bay to forage in channels and mouths of tributaries[2]	Diverse and extensive group of Federally threatened or endangered species nearby Cumberland Island National Seashore, St. Marys River and Cumberland Sound, with 20 species located on the base[2] Three species of particular concern, especially with regard to potential impacts from dredging and increased ship traffic are[2]: **right whale** **manatee** **sea turtles** **Right whale** Most endangered whale in N. Atlantic[2] Protected by the Marine Mammal Protection Act[2]. The FL/GA calving ground (only known right whale calving area) is designated as critical habitat for the right whale (Kings Bay is in this area)[2] Right whales exhibit behaviors making them prone to ship collisions[2] National Oceanic and Atmospheric Administration outlining

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		No threatened or endangered freshwater fish or invertebrates[2] No know threatened or endangered species of plants, insects, reptiles, amphibians or birds on upland area of base[2] DoD Question #248-250 asked about Threatened and Endangered Species. Naval Station Norfolk, VA reported that federally-listed Threatened and Endangered species are not present. However, peregrin falcon and piping plover are according to Seawolf FEIS (see above)	a proposal for speed limits for all ships over 65 feet in length in areas it deems critical to the survival of the remaining 300 whales (impose speed limits of 10 to 14 knots and have vessels travel in established shipping lanes in the calving area from Dec. 1 through March 31). NOAA officials have said that any increase in vessel traffic in that area could be a concern for calving-area protection efforts.[8] The Navy stated that must not be subjected to speed limits and lane restrictions.[8] The Ocean Conservancy, stated in a Nov. 15 letter to NOAA that Navy vessels account for 17 percent of all whale-ship collisions, the highest of any single source. Researchers attribute the death of one pregnant female whale in 2004 to a Navy ship. Another whale death in 1995 is attributed to a Navy submarine. [8] Whale sightings at the southern tip of Cumberland Island (6 miles from Site 6)[2] Increased boating traffic and homeport operations will impact the potential of a collision with a whale[2] Three Seawolfs expected to generate an additional 30 trips per year, with 20 trips while the right whale is in the area[2]

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			Is a Right Whale Early Warning System **Manatees** – federally endangered Manatees do occur in Site 6 vicinity; management practices must be observed during dredging operations (see FEIS for details of Management Plan – page 8-7)[2]. Kings Bay is a favorite congregation area for manatees during warm season, moving between area near Crab Island and the Subase in predictable patterns[2] Especially prone to collisions with boats, are often struck by boats[2] All contracts contain language about endangered species – sea turtles, whale and Florida manatee – being sighted in the general vicinity[2] Florida manatee – protected under the: Marine Mammal Protection Act U.S. Endangered Species Act Georgia Endangered Wildlife Act Florida Growth Management Act **Sea turtles** Loggerhead (official state reptile) utilizes barrier islands of SE Georgia as nesting ground[2] Cumberland and Amelia

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			islands are both barrier islands, excellent habitat for sea turtles[2] Turtles return to Kings Bay area in early April, stay through first weeks of December[2] No historical sightings of sea turtles in Kings Bay[2] 36 dredge-related sea turtle incidents recorded for Fernandina Harbor (south of Kings Bay on Amelia Island, Florida, on southern extension of St Marys River) The *Summary of Cumulative Environmental Impacts* report and the *Summary of Scenario Environmental Impacts* report prepared through the BRAC process do not mention the threatened green sea turtle which have been observed on the Base (see dredging conditions in **Dredging** section) Following have been observed at the base[2]: Federally threatened **Indigo snake** **Peregrine falcon** **Grey fox** **Piping plover** Federally endangered **Manatee** **Southern bald eagle** **Wood stork** - feeds and roosts on base Wood stork foraging and roost area on base is a designated wood stork mitigation and management area, affording them special protection

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			and to encourage growth among the 125 wood storks found on the base **Logger-head shrike** **Red-cockaded woodpecker** **Kirtland's warbler**[2] **Bachman warbler** **Shortnose sturgeon** has been observed historically in Cumberland Island; requires a Dec 15 – Feb 15 dredge window State threatened[2] **Least tern** **Gopher tortoise** (is a federal candidate species and observed on the base
Waste Management	New London Submarine Base is a EPA designated Superfund Site [3] Resource Recovery Facilities are available for disposal of MSW, C&D (clean wood) and certain special wastes (need to have some BTU value). Current tipping fees: MSW - $50 - $60/ton; C&D and special waste - $>$100/ton[13] Available statewide landfill disposal capacity in Connecticut is extremely limited. There are two or three available landfills that would be able to accept C&D and special waste, virtually no landfill disposal capacity for MSW. Two of these landfills will exhaust their permitted capacity by calendar year 2009. Tipping fees (not regulated by state) are established by the owner/operator of the	Norfolk Naval Base (Sewells Point Naval Complex) has a EPA designated Superfund Site[4] Approximately fifty (50) landfills statewide, that could be utilized for the disposal of solid waste. Tipping fees (not regulated by state) are established by facility owner/operator and are subject to change. Current tipping fees: MSW - $55 - $60/ton and C&D - <$20/ton. No information available on tipping fees for special waste[13] The base has a refuse disposal agreement with Southeastern Virginia Public Service Authority (SPSA)	No National Priorities List (Superfund) sites in Camden County, Georgia[5] Approximately one-hundred fifteen (115) landfills statewide, seven (7) are in Camden County, which could be utilized for the disposal of solid waste. Tipping fees (not regulated by state) are established by facility owner/operator and are subject to change. Current tipping fees: MSW - $25 - $30/ton; C&D - $25/ton. No information available on tipping fees for special waste.[13] Kings Bay has an inert material (brick, concrete, yard waste) disposal facility on the base[13]

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	facility and are subject to change. Current tipping fees: C&D - $60 - $80/ton and special waste - $70 - $85/ton.[13]		
Water Resources	**Thames River** Thames River: Major conveyor of wastewater and industrial discharge – WWTF in Norwich, Montville, Groton, and New London, Dow Chemical, Montville Power Plant, AES Thames Cogeneration Plant, the Subase, Electric Boat, and Pfizer.[2] Shellfish beds (relay beds) are located in area of Mamacoke Island and in Ledyard Thames River in vicinity of Subase is classified SC/SB [water currently classified as SC (suitable for fish, shellfish and wildlife habitat, certain aquaculture operations, recreational uses, industrial and other legitimate uses including navigation. Present water quality conditions preclude the full attainment of one or more designated uses some or all of the time. One or more Water Quality Criteria are not being consistently achieved) with a restoration goal of SB (suitable for marine fish, shellfish and wildlife habitat, shellfish harvesting for transfer to a depuration plant and relay (transport) to approved areas for purification prior to human consumption, recreation, industrial and other legitimate uses including navigation)][6] Criteria not currently met due	**Elizabeth River** Numerous point source discharges upstream, where low flushing rates exist, have exacerbated water quality impacts of 68 VPDES permitted facilities discharging to the Elizabeth River, nine being major discharges Approximately 16,320 acres of shellfish grounds have been condemned in the Elizabeth River due to contaminants and fecal coliforms from a combination of point and non-point sources Tributaries to Elizabeth River have heavy metals, petroleum hydrocarbons and PAHs as well as frequent occurrences of low and hypoxic DO Heavy metals (copper, chromium, nickel, lead, zinc and arsenic), petroleum hydrocarbons and PAHs found in the tributaries to the Elizabeth River	**Kings Bay** Water Resources have been impacted by point and non-point sources Dredging Effluent from dredge disposal areas Sewage effluent Construction WF industrial operations Surface water monitoring showed elevated levels of orthophosphate, lead, zinc, COD, BOD, TOC, and TKN. Low levels of DO also found.[2] Estuarine water quality showed elevated levels of fecal coliform at most stations as well as copper and lead at localized stations[2] Overall contaminant levels seen to fluctuate from year to year[2] Estuary is generally well-mixed[2] Suspended sediment is continuously transported through the estuary by tidal currents and fresh water inlets. Gross transport of approx. 6,148 cubic yards for a single measured tidal cycle have been calculated.[2] An estimated 600,372 cubic yards of suspended sediment is transported seaward through the inlet every year.[2]

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	to periodic high bacteria levels and/or low DO in the lower saline layer in the upper reaches of the river. Do levels in the lower river near the subase are at levels that support a healthy ecosystem. [Two ambient (background) water quality measures are especially relevant – total organic carbon (TOC) and suspended material concentration (SMC)][2] Host to a variety of uses including fishing shellfishing, rec. boating, manufacturing, commercial and military navigation and treatment activities.[6] Limited water quality data exists for the Thames River near the subase. However, one sample at Pier 32 in 1991 revealed no detectable PAHs and low metal levels. Ambient concentrations of several metals approached or slightly exceeded EPA water quality criteria[6]		
	Ground Water Groundwater in some areas of base averages about 8 feet below the surface, with the lower base having an elevation of approximately 5-7 feet, and the upper base having an elevation of about 8-10 feet with permeable soils No developed ground water sources at the Subase[2] City of Groton provides water to the Subase[2]	**Ground Water** Piezometric surface of the water table aquifer is generally found at 4 to 4 1/2 feet below the ground surface Shallow aquifer is recharged primarily by direct infiltration of incidental precipitation Periods of extreme rainfall can cause a rise in the water table of up to 30 inches while extended dry spells can cause a 24 inch lowering from the normal depth of approximately 4 feet Groundwater quality varies[2]	**Groundwater** High water table[2] Infiltration of surface water is rapid since most soils have high percolation rates[2] Three separate aquifers within the base; water is hard with high levels of magnesium, calcium, sulfates, chlorides and other ions; also has unsuitable levels of hydrogen sulfide and iron for potable water. Water is treated in an on-base water treatment plant to make suitable for drinking[2]

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		Shallow ground water not extensively used for potable supply due to poor quality. No drinking water supply wells present.[2]	Groundwater monitoring has shown the following contaminants: lead, mercury, arsenic, total organohalides (TOH), TOC, total Kjeldahl nitrogen (TKN), and nitrate-nitrite[2] Four groundwater wells located near the mainside dredge disposal area showed consistency higher levels of lead, mercury, TOH, TOC, TKN and Nitrate-nitrite than other wells on the base.[2] Georgia's DNR concerned that increased dredging at Site 6 may facilitate saltwater intrusion into the ground water system[2] --- Numerous water resources: wetlands, tidal courses, open water, estuarine resources[2] Sediment quality generally good.[2] Minimal and temporary impacts expected from dredging operations (for the Seawolf).[2] Relative absence of sediment contamination.[2] Important habitat for many species of fish[2] Approx 18 freshwater ponds[2]
Wetlands	No tidal wetlands specifically identified on the Subase[2] Is a 25-acre wetland site located in the northwest	No natural inland wetland systems[2] No coastal wetlands on the Elizabeth River[2]	3,000 acres of saltwater marsh and tidal streams[1] Eastern half of subase is dominated by coastal

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	quadrant of the Subase (Area A) which contains dredge sediment from historical dredging. Designated as Installation Restoration site and vegetated with *Phragmites australis*[2]		wetlands[2] Wetlands are very important erosion deterrents[2] In Site 6 area, there is a band of coastal wetlands along the shoreline, 400 ft wide.[2]

[1] Georgia Dept. of Natural Resources, Pollution Prevention Assistance Division website www.p2ad.org/Assets/Documents/govt_dod_fs_kings.htm

[2] Seawolf FEIS

[3] National Priorities List Sites in Connecticut, www.epa.gov/superfund/sites/npl/ct.htm

[4] National Priorities List Sites in Virginia, www.epa.gov/superfund/sites/npl/va.htm

[5] National Priorities List Sites in Georgia, www.epa.gov/superfund/sites/npl/ga.htm

[6] Environmental Assessment for Pier 6 Replacement Project, U.S. Naval Submarine Base New London, December 2004

[7] Peregrine falcon de-listed from federal Endangered and Threatened species list in 1999, species currently being monitored

[8] "Whale-protection Rules Pose Challenge For Kings Bay Sub Plan," The New London Day, June 17, 2005, Judy Benson

[9] All data in this paragraph from The Department of the Navy's Hurricane Havens Handbook for the North Atlantic unless otherwise noted - (http://pao.cnmoc.navy.mil/nmosw/tr8203nc/kingsbay/text/sect4.htm), (http://pao.cnmoc.navy.mil/nmosw/tr8203nc/nlondon/text/sect7.htm) , and http://pao.cnmoc.navy.mil/nmosw/tr8203nc/norfolk/text/sect7.htm)

[10] DEP Office of Long Island Sound Programs staff

[11] All data in this paragraph from The Department of the Navy's Hurricane Havens Handbook for the North Atlantic unless otherwise noted - (http://pao.cnmoc.navy.mil/nmosw/tr8203nc/kingsbay/text/sect4.htm), (http://pao.cnmoc.navy.mil/nmosw/tr8203nc/nlondon/text/sect7.htm), and http://pao.cnmoc.navy.mil/nmosw/tr8203nc/norfolk/text/sect7.htm)

[12] The Long Island Express, The Great Hurricane of 1938 http://www2.sunysuffolk.edu/mandias/38hurricane/track.html

[13] CT Department of Environmental Protection Waste Bureau staff

[14] Connecticut DEP Air Bureau staff

[15] St. Marys River Maintenance Dredging Project, Kings Bay Naval Station, modifications to Permit # 199201854, Special Conditions

[16] Anthony Principi, Chairman, Defense Base Closure and Realignment Commission Holds Hearing on Recommendations and Methodology, Part II, May 17, 2005

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[1] Georgia Dept. of Natural Resources, Pollution Prevention Assistance Division website www.p2ad.org/Assets/Documents/govt_dod_fs_kings.htm

[2] Seawolf FEIS

[3] National Priorities List Sites in Connecticut, www.epa.gov/superfund/sites/npl/ct.htm

[4] National Priorities List Sites in Virginia, www.epa.gov/superfund/sites/npl/va.htm

[5] National Priorities List Sites in Georgia, www.epa.gov/superfund/sites/npl/ga.htm

[6] Environmental Assessment for Pier 6 Replacement Project, U.S. Naval Submarine Base New London, December 2004

[7] Peregrine falcon de-listed from federal Endangered and Threatened species list in 1999, species currently being monitored

[8] "Whale-protection Rules Pose Challenge For Kings Bay Sub Plan," The New London Day, June 17, 2005, Judy Benson

[9] All data in this paragraph from The Department of the Navy's Hurricane Havens Handbook for the North Atlantic unless otherwise noted - (http://pao.cnmoc.navy.mil/nmosw/tr8203nc/kingsbay/text/sect4.htm), (http://pao.cnmoc.navy.mil/nmosw/tr8203nc/nlondon/text/sect7.htm) , and http://pao.cnmoc.navy.mil/nmosw/tr8203nc/norfolk/text/sect7.htm)

[10] DEP Office of Long Island Sound Programs staff

[11] All data in this paragraph from The Department of the Navy's Hurricane Havens Handbook for the North Atlantic unless otherwise noted - (http://pao.cnmoc.navy.mil/nmosw/tr8203nc/kingsbay/text/sect4.htm), (http://pao.cnmoc.navy.mil/nmosw/tr8203nc/nlondon/text/sect7.htm), and http://pao.cnmoc.navy.mil/nmosw/tr8203nc/norfolk/text/sect7.htm)

[12] The Long Island Express, The Great Hurricane of 1938 http://www2.sunysuffolk.edu/mandias/38hurricane/track.html

[13] CT Department of Environmental Protection Waste Bureau staff

[14] Connecticut DEP Air Bureau staff

[15] St. Marys River Maintenance Dredging Project, Kings Bay Naval Station, modifications to Permit # 199201854 Special Conditions

Environmental Resource Area	Naval Submarine Base New London (Retaining Base)	Norfolk Naval Station, VA (Gaining Installation)	Kings Bay Naval Submarine Base, GA (Gaining installation)

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[15]St. Marys River Maintenance Dredging Project, Kings Bay Naval Station, modifications to Permit # 199201854 Special Conditions

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July 15, 2005

The Honorable Christopher Dodd
United States Senator
SR-448 Russell Senate Office Building
Washington, D.C. 20510-0702

The Honorable Joseph I. Lieberman
United States Senator
SH-706 Hart Senate Office Building
Washington, D.C. 20510-0703

Dear Senator Dodd and Senator Lieberman:

On June 28, 2005, I sent you my Report of my research and conclusions concerning the BRAC process regarding the proposed closure of the Groton Submarine Base. Upon further study and review, I have updated one section of the report to clarify that the Federal Facilities Agreement (FFA), including provisions requiring the cleanup of contamination before the base can be transferred is clearly enforceable under federal law. Accordingly, I enclose a copy of my revised report, for you to use and to share with the Washington Group and the BRAC Commission as you deem appropriate.

I continue to be available to provide any requested supporting documentation or further information, and to discuss my research and conclusions.

Very truly yours,

RICHARD BLUMENTHAL

REVISED (JULY 15, 2005)
REPORT OF ATTORNEY GENERAL RICHARD BLUMENTHAL CONCERNING THE PROPOSED CLOSURE OF THE GROTON SUBMARINE BASE AND THE BRADLEY AIR NATIONAL GUARD UNIT

I. INTRODUCTION

This report summarizes serious deficiencies in the information and assumptions relied upon by the Department of Defense ("DOD") in making its recommendation to close the Submarine Base in New London. These deficiencies establish that the DOD recommendation is insupportable. The report focuses on environmental and other legal issues, because the DOD clearly has made unwarranted factual and legal assumptions about the nature, extent and cost of the environmental cleanup that will be legally required if this base is closed. In addition, DOD appears to have misunderstood the legal ownership status of the base.

These incorrect assumptions fatally undercut DOD's cost savings projections underlying its recommendation to close the Submarine Base. Exposing these errors should be a significant part of Connecticut's presentation in opposition to the ill-conceived plan to close the Submarine Base. Some of these errors, especially involving the Federal Facilities Agreement and the deed restrictions, involve rights that are legally enforceable.

In addition, the proposal to close the Bradley International Airport Air National Guard Unit violates federal law, which requires the consent of the Governor to be effective. Such a violation also involves legally enforceable rights.

II. ENVIRONMENTAL ISSUES

A. Introduction to Environmental Issues

Our report documents three major flaws in the DOD analysis leading to the recommendation to close the New London Submarine Base. Each flaw creates a major inaccuracy in DOD's projections concerning claimed cost savings from closure, or the DOD's analysis of the effects of closure upon the New London area economy.

- DOD has made erroneous projections of costs and estimated savings associated with the proposed closure of the base caused by inadequate and currently unavailable information of the extent and degree of potential radiological contamination at the base.

- DOD has failed to understand and calculate the true extent and cost of its legal obligations under a Federal Facilities Agreement ("FFA") unique to this base, which requires a high level of remediation *before* the base can be transferred, contrary to DOD's assumptions. The FAA creates legally enforceable rights for the state pursuant to the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA").

- DOD has grossly underestimated the economic impact of closure on the communities surrounding the base, by ignoring the legal implications of the FFA on future reuse of the base if it were to be closed.

B. DOD's cost projections for cleanup of radiological waste are totally unreliable

Although, as explained below, the law clearly requires that remediation of this base must be completed *prior to its transfer*, DOD has plainly admitted that it knows little of the extent and nature of contamination, particularly radiological contamination on the northern part of the Submarine Base, and that it *cannot make an accurate or realistic assessment of the time and money required for complete remediation unless and until extensive radioactive assessments are done*. These additional radioactive waste assessments could take years to complete before the extent of radioactive contamination is determined. *Such assessments and resulting remediation would not be required if the base remained open*. According to the Navy: "(w)ere this facility to shut down, significant additional sampling and surveying would be performed prior to releasing the facility for unrestricted use." Letter March 6, 1996 from J. Tarpey, Acting Director, Radiological Controls, Department of the Navy, to Kymberlee Keckler, Remedial Project Manger, U.S. Environmental Protection Agency, Region I, p.32. This statement is later reaffirmed: "(t)he Navy acknowledges that additional characterization of both the buildings and environmental areas [for the presence of radioactive materials] would be necessary were the Sub Base to be shut down, consistent with practices at other closing Naval facilities." Id., p. 36. Instead of basing potential closing costs on hard figures calculated from thorough testing, the Navy has attempted, as explained below, to extrapolate from the costs of cleaning up two significantly dissimilar bases to determine closing costs for the Groton Sub Base. Such estimates are obviously valueless in calculating savings.

In addition, the Navy has admitted numerous other shortcomings in its site investigations to date. These shortcomings further confirm the complete inadequacy of the Navy's knowledge of the extent of contamination at the base, and therefore, the inadequacy of any attempt to project realistic cleanup costs. For example:

- The Navy has admitted that it has examined for radioactive contamination only a small fraction of the Sub Base property -- less than nine hundred *thousand* of the 23.5 *million* square feet comprising the base, or about 4% of the total base area.

- The Navy has admitted that it has almost exclusively concentrated its radiological assessment in the southern part of the Sub Base, the 624,832 square feet of the base directly under the control of the Naval Nuclear Propulsion Program ("NNPP"). For the remainder of the base-- most particularly the northern portion of the base-- the Navy has completely inadequate information regarding the extent of the radiological contamination.

- The Navy has admitted that its estimates of the cost of decontaminating the Groton submarine base are extrapolations derived from the cleanup costs that it incurred at two very different bases -- Mare Island and Charleston. Those bases, to take but one example, have far fewer landfill and waste disposal sites that could contain radioactive waste than the Submarine Base at Groton, and yet the Navy has used Mare Island and Charleston closing costs to project cleanup costs for Groton. The Navy's "one size fits all" approach has no basis in fact or reality. Neither Mare Island nor Charleston can be used "to determine realistic closure cost estimates" for the Groton submarine base until Groton-specific contamination studies are done--studies the Navy has admitted will take years to complete.

- Very simply, the cost of clean-up at other bases is irrelevant to the cleanup of the Sub Base because the Navy does not know what contamination exists at Groton, and therefore cannot use Mare Island and Charleston for a comparison with Groton.

- The Navy admits that its radiological assessment of the Groton submarine base is incomplete. It is working on an update of its original 1997 Historical Radiological Assessment ("HRA"), an assessment it has acknowledged was cursory, but even that update will not be complete until sometime next year. Even if the Navy completes its update, the evaluation will still be incomplete and unreliable because it is not based on the testing and studies necessary to determine the scope of radiological contamination on the base. Far more study will still be required.

- The Navy concedes that in creating the 1997 HRA, it found that historical documentation of early uses of general radioactive material, from the 1940s to 1950s, was "sparse," and that the disposition of certain sources of radioactivity was "unknown." HRA, Volume II, p. 4-6. The inadequacy of early data is undoubtedly more acute at the Sub Base than at other submarine bases, because of its longer history. As the Navy notes, "Subase is the oldest operating and support base for Naval submarines." HRA, Vol. II, p. 4-2. In spite of the long history of use of radioactive materials and lack of adequate documentation in the early years, the Navy conducted its 1997 HRA without interviewing or even trying to locate personnel who might have had knowledge of the disposition of radioactive

material in the 1940s and 1950s. HRA, Vol. II, pp. 2-3 - 2-4.

- The exceedingly limited groundwater sampling to date has found "samples exceeding either the gross alpha [limit for radioactivity] or the gross beta [limit for radioactivity] during Phase I" testing. Navy's Response to Comments on Draft HRA, page 20. The Navy's position is that this is due to "naturally-occurring potassium-40" even though the "work plan did not require a background study to determine naturally occurring levels of radioactivity." Id. In fact, it is impossible to conclude that radiation levels are merely background radiation, or to determine their source, without having performed even a minimally acceptable background radiation study, as the Navy concedes it has not done. More importantly, the Navy has acknowledged that it has used radioactive materials including Am-241, Cs-131 and 137, K-42, C-14, Fe-59, Zn-65, Cr-51, I-123, 131, Ga-67, and Co-57 at the submarine base. *HRA, Vol II, Sections 5, 6.* It has also acknowledged that there have been "incidents" or releases of radioactive material, and that only a small subset of the entire facility has been surveyed for radioactivity. Without extensive further study, there is no way to determine where that radioactivity came from, what it is, or what will be required to clean it up.

Further, it is important to consider the inadequacies in the Navy's site characterization and other radiological survey work in the context of the historical experience of the State of Connecticut with radioactive contamination at federal facilities. The Navy repeatedly asserts that it has focused its testing on areas and buildings where records or interviews suggest that radioactive materials may have been used, rather than conducting a full sampling of the entire base. Unfortunately, Connecticut's recent documented experiences show that this approach alone cannot reasonably be expected to identify all dangerous materials. Much more extensive site survey work is necessary to show what is or is not on the base property. Past nuclear materials handling and waste disposal practices have resulted in numerous undocumented releases of radioisotopes into structures, landfills, and the general environment, many of which were only discovered years later. Remediation of these releases has been complicated and expensive and is still far from complete. Reliance on existing records and interviews to determine the areas for testing is plainly inadequate.

For example, at another large Department of Defense site, C.E. Windsor in Windsor, Connecticut, the original site survey work was based, like the HRA for the Sub Base, on an assessment of written records and interviews that indicated that nuclear materials were only used in a select number of buildings. As decommissioning of these buildings was underway, a passerby found an area of buried disposal drums in an adjacent forest that turned out to be a major source of radiological contaminants -- an area that was not identified in any records or interviews. In another part of the site, workers tripped over a debris pile of radioactively contaminated waste that had been simply dumped in the woods and abandoned -- again, undocumented in any way.

In another series of instances, radium watch manufacturing facilities for the United States Army Air Corps, in and around Torrington, Connecticut, were found to

have dangerous levels of radioactive material decades after the buildings had been "cleaned up" and released for use as low-income housing. No records were available at the time, or have been found since, that detailed the numerous releases or would otherwise have alerted state health and environmental authorities to the presence of these materials. Only the State's independent and thorough site surveys eventually discovered the threat.

These experiences in Connecticut show plainly that release incidents and disposal practices at federal facilities, particularly in the 1940-1970 period, can and have resulted in situations where no reliable documentation exists that would point regulators to areas of concern. In a site as large as the Sub Base, where nuclear materials have been handled for many decades and where groundwater sampling indicates the presence of radioactive isotopes, it is clearly insufficient to rely on site characterization based on old records (or their absence) and inferences based on historical practices. A full scale study is the only way to determine the extent of contamination -- a study that must be done if closing is to occur.

A related flaw in DOD's projection of the cost and extent of necessary cleanup concerns the environmental standard which radiological cleanup must meet. Although the DOD, in a letter of June 15,2005 to Senator Joseph Lieberman, speaks, appropriately, but somewhat vaguely, of cleanup to permit "unrestricted future use," there is no indication that DOD has recognized there is a legally binding cleanup standard for radiological contamination in Connecticut. The legal radiological clean-up standard in Connecticut -- which would be binding on the Navy -- is 19 Millirem Plus As Low As Reasonably Achievable (ALARA). This standard is enforceable through CERCLA and the Federal Facility Agreement as an Applicable, Relevant, Appropriate Regulation (ARAR). I will be glad to provide our legal analysis establishing the enforceability of this standard. It appears that the Navy has failed to take this standard into account in calculating cleanup costs, which creates yet another deficiency in the Navy's attempts to estimate the real costs of cleanup of the base.

These facts, taken together, establish that the DOD used clearly erroneous assumptions in placing the Groton submarine base on the DOD base closure list. According to the Navy's admissions to the EPA, the extent of the radioactive contamination at the Groton site is now unknown, but will have to be fully determined if the base is closed, resulting in potential substantial and significant costs above those that would be required if the base remains operational. While DOD has acknowledged its ignorance of the nature and extent of radiological contamination on the northern part of the base, it has completely ignored the obvious consequence of that ignorance. Without adequate identification of the nature and extent of the radiological contamination, it is <u>impossible</u> to accurately project the costs of required cleanup. There is really no factual basis at all for DOD's projections of cleanup costs in the absence of adequate data.

C. DOD has failed to factor in the legal requirements of its Federal Facilities Agreement in computing the costs of cleanup, further undercutting the accuracy of its cost projections

Another fundamental deficiency in DOD's analysis is its disregard of the existence and significance of the Federal Facilities Agreement (FFA) regarding this base. This agreement was negotiated and executed in 1994 by the State of Connecticut, represented by my office, along with the United States Navy and the United States Environmental Protection Agency. It remains in full force and effect. The agreement was necessary because the Submarine Base had been designated as a Superfund site by EPA under the Comprehensive Environmental Response, Compensation and Liability Act ('CERCLA"), and CERCLA required the creation of a legally binding plan for site remediation and investigation.

Under Section 37 of the Agreement, the Navy is prohibited from "enter[ing] into an agreement to sell or otherwise transfer real property comprising an Area of Contamination .... *until the Navy has completed all Remedial Actions and Operation and Maintenance for such Area of Contamination as required by this Agreement*... ."[1] Contrary to DOD's assumptions in compiling its cost of closure estimates, the requirements of the FFA dictate a far higher cleanup cost for this base if it is closed and made available for other use than if it remains open, because all cleanup must be completed before the property can be transferred. It is critical to note that this requirement -- full cleanup prior to transfer of the property -- does not necessarily apply to other federal properties which are not subject an FFA. Normally, environmentally impaired military bases can be transferred and returned to economic use before all remediation is completed. Pursuant to the Defense Base Closure and Realignment Act of 1990, in the absence of such an agreement, the Secretary can transfer a base *before* it is fully remediated, as long as a redevelopment authority agrees to perform all environmental restoration, waste management and environmental activities that are required for the facility under Federal and State laws. In contrast, the Groton FFA *prohibits transfer of affected lands until the areas of contamination are fully remediated -- period*. For the Sub Base, therefore, the requirement for complete cleanup will greatly increase the costs in the years preceding and following any closure. DOD has completely failed to recognize that fact, and include it in its cost calculation -- resulting in a fundamentally unreliable estimate.

The requirements of the FFA are fully enforceable under federal law and Connecticut can enforce these rights in court. Under CERCLA section 120(e), the FFA is the legal mechanism to obtain compliance with CERCLA by any department of the United States which owns a superfund site. CERCLA section 120(f) provides for the participation of the state in the FFA. Under paragraphs 21.7 and 21.8 of the FFA, for

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[1] While Section 37.1 references an exception to this requirement when the Navy has complied with 42 U.S.C. §9620(h), that exception does not change the requirement. The Navy can only comply with that provision by covenanting that all remedial action necessary to protect human health and the environment .... has been taken before the date of the [property] transfer ... 42 U.S.C. §9620(h)(3)(A)(ii). It can only provide that covenant after cleanup is complete.

Connecticut has the right to enforce any term in the FFA in United States District Court. Additionally, under paragraph 21.1, any standard, condition or requirement of the FFA is enforceable under the Citizens Suit provision of CERCLA, section 310. Section 310(a)(1) allows a state to sue the United States for any violation of any condition or requirement effective under CERCLA, including any provision of an FFA under section 120 of CERCLA. In simplest terms, Connecticut has the legal right to go to court to enforce the terms of the FFA.

According to DOD in its May 2005 "Base Closure and Realignment Report to the Commission," radioactive waste clean-up costs were not used to reduce the projected base closure "savings." Underlying this conclusion is a completely erroneous legal and factual assumption, explicitly stated by DOD, that the costs would be the same whether the base remained open, realigned or was closed. As stated in the Report: "Naval Submarine Base New London, CT ... reports $23.9 million in costs for environmental restoration. Because the Department has a legal obligation to perform environmental restoration regardless of whether an installation is closed, realigned, or remains open, *this cost is not included in the payback calculation.*" Similarly, in a DOD memorandum setting forth the policy guidance for implementing BRAC 2005, the Undersecretary of Defense instructed the service branches that: "Since the Department of Defense has a legal obligation to perform environmental restoration regardless of whether a base is closed, realigned or remains open, environmental restoration costs at closing bases *will not be considered in the cost of closure calculations*." These assumptions and their use in the cost calculations are contrary to law.

The facts described above show clearly that costs associated with closure of the Groton submarine base will significantly exceed the costs that would be incurred if the base were to remain open. And yet, not only were costs resulting from this required testing and remediation not included in calculations of costs of closure of the base, but the truth is that the actual costs *cannot* be determined until necessary intensive testing is done.

In sum, the facts and applicable legal requirements seriously undermine and contradict DOD's savings projections for closure of the base, because those projections wrongly assume that the costs of environmental remediation may be ignored. Until a complete radioactive waste assessment is made -- a lengthy, costly project in itself -- the costs of decontamination cannot be accurately determined, and no cost savings can be accurately computed for the closure of the Groton submarine base.

D. Because of its failure to consider the requirements of the FFA, DOD has grossly underestimated the cost of closure to the economy of Southeastern Connecticut

The implications of the FFA for the future economic development of the New London area are another source of great concern that further undermine the reliability of the calculation underlying the DOD recommendation for closure of the Sub Base. This recommendation discusses economic impact on the affected communities through the

year 2011, and appears to tacitly assume that the property will become available for productive reuse within the next six years. This estimate may be wildly optimistic in light of the FFA requirements. In light of the provisions of the FFA, and the unanswered environmental questions discussed above, it is apparent that no one has any realistic idea of how long it will take to complete cleanup of the property and permit its release for productive reuse.

The economic impacts to the community of the potential long term inability to use a very large vacated parcel of waterfront property are staggering, and probably unique to this base. The situation is unique because of the requirements of the FFA, and the impact of the problem is compounded by the very high economic value of the base's land if it were clean and available for reuse. Nothing in available DOD documents provides any suggestion that DOD has acknowledged and considered this potentially devastating economic impact upon the greater New London area, nor that DOD has considered the ways in which this economic impact differs from the impact at other bases.

III. DOD APPEARS UNAWARE OF THE DEED RESTRICTIONS RELATING TO PART OF THE SUB BASE LAND AND THEIR IMPLICATIONS -- BOTH LEGAL AND ECONOMIC

As discussed in detail below, the federal government is required by deed restrictions to utilize the land housing the core of the Sub Base for naval purposes, and it risks forfeiting title to that land if it fails to do so. It is not clear, however, that the DOD has incorporated the potential costs of losing the property in estimating economic impacts of closing the Sub Base. To the contrary, the DOD may be erroneously relying on significant proceeds from the sale or lease of that property to reduce its net closure costs. For this additional reason, the DOD's estimated costs for closing the Sub Base may be understated.

By way of background, on March 2, 1867, the United States Congress passed an Act directing "the Secretary of the Navy ....to receive and accept a deed of gift, when offered by the State of Connecticut, of a tract of land situated in the Thames river, near New London, Connecticut, with a water front of not less than one mile, to be held by the United States ***for naval purposes***." Chap. CLXXII – *An Act making Appropriations for the Naval Service for the Year ending thirtieth June, eighteen hundred and sixty-eight*, 39th Congress of the United States, Sess. II Ch. 171, 172, March 2, 1867 (emphasis added).

Similarly, the City of New London, as agent of the State of Connecticut, was authorized by an 1867 Act of the Connecticut General Assembly to acquire and hold land for eventual conveyance to the federal government **for naval purposes**. *See An Act in Addition to and Alteration of an Act entitled An Act Concerning Land [New London Navy Yard]*, Special Laws, Connecticut General Assembly, May 1868, Vol. V, 798, pages 318-319, copy attached (hereafter referred to as the "1867 Act").

Pursuant to this grant of authority, in January of 1868, the City of New London acquired approximately 112 acres of land in Ledyard and Groton. This property, which encompasses main components of the present Sub Base and houses at least 85 buildings, as well as piers and other valuable facilities, was transferred on April 11, 1868 by deed from the State of Connecticut to the federal government ("the Deed"). The Deed expressly required that the land be used for "**for naval purposes**." In particular, the Deed provides in relevant part as follows:

> The State of Connecticut acting hereby by [commissioner appointed by the governor and city of New London by its Mayor]. . . [does] give, grant, bargain and sell and confirm unto the said United States of America the following tract of land (described) . . . to be held by the said United States **for Naval purposes** as contemplated by said Act of Congress of the United States relative thereto, approved Mar. 2d, 1867, [see C below] and the act of the general Assembley of the State of Connecticut hereinbefore mentioned...
>
> To have and to hold the aforesaid premises with all the appurtenances thereof unto the said United States and their assignees [sic] for naval purposes according to the provisions of said act of the general assembly of said State of Connecticut therein before mentioned.

See Deed at page 611 (Emphasis added.)

There is no question, therefore, that the Deed, together with the 1867 state and federal legislative acts, requires that the original 112 acres of the Sub Base property be used in perpetuity for naval purposes. While it is unlikely that the federal government can be compelled to continue to use the property for naval purposes, controlling legal precedent suggests that its failure to do so would likely result in forfeiture of the property to the State of Connecticut.

In particular, Connecticut's Statute of Charitable Uses, Conn. Gen. Stat. § 47-2, provides that land given for public or charitable purposes must be used *forever* for such purpose. Connecticut law provides that when a charitable restriction on land use is frustrated or violated, equity will trigger "a resulting trust" to the original grantor. See Waterbury Trust Co. v. Porter, 131 Conn. 206 (1944). Put differently, where the holder of land fails to comply with charitable or public restrictions on its use, the grantor -- in this case, the State of Connecticut -- can seek reversion of the land, even when no clause in the original grant mandates such a reversion. Section 3-125 of the General Statutes authorizes the Attorney General to bring legal actions to enforce public and charitable restrictions on the use of land, including legal actions to strip title from property holders who violate public or charitable land use restrictions.

Under the federal Quiet Title Act, 28 U.S.C. 2409a, the federal government is not shielded by sovereign immunity principles from legal claims, such as this one, as to the title to land for which it holds an interest. My research shows that the State's substantive

laws, including its equitable principles governing charitable uses and resulting trusts, are applicable in an action against the federal government under the federal Quiet Title Act.

The State, therefore, would be entitled to bring an action under the Quiet Title Act for equitable reversion of title to the original 112 acres of the Sub Base under the Quiet Title Act. See, e.g., USA v. Bedford, 657 F2d 1300, 1216 (2d Cir. 1981)(the Quiet Title Act "casts a wide jurisdictional net" and permit "almost any variety of suit concerning interests in land."); see also Prater v. USA, 612 F.2d 157, 159 (5th Cir. 1980)(same). Under the FFA, as discussed above, therefore, the federal government would be required to clean up the property to the highest standards before transfer, but it would never be able to realize any offsetting monetary recovery for disposing of it after cleanup, as it would have to be returned to the state pursuant to the terms of the Deed.

IV. THE RECOMMENDED CLOSURE OF THE BRADLEY INTERNATIONAL AIRPORT GUARD UNIT WOULD VIOLATE FEDERAL LAW

Included among the list of bases recommended for closure is the Bradley International Airport Air Guard Unit ("the Bradley Air Guard Unit"). While the BRAC Commission has characterized the Bradley Air Guard Unit's closure as a "realignment," the Commission's recommendation would result in *all* of the Unit's equipment and personnel being relocated from Connecticut to Massachusetts. In addition to the security concerns posed to the citizens of Connecticut by the recommended closure of Connecticut's only Air National Guard flight wing, it is estimated that the closure would result in the loss of at least seventy military and civilian jobs in our State.

Federal law appears to prohibit the closure or relocation of any Connecticut Army or Air National Guard Unit absent the Governor's express consent. In particular, "[a] unit of the Army National Guard of the United States or the Air National Guard may not be relocated or withdrawn ... without the consent of the governor of the State or, in the case of the District of Columbia, the commanding general of the National Guard of the District of Columbia." See 10 U.S.C. § 18238; see also 32 U.S.C. § 104(c) ("[n]o change in the branch, organization, or allotment of a unit located entirely within a State may be made without the approval of its governor").

Because no such consent has been granted by the Governor with regard to the Bradley Air Guard Unit, closure or relocation of that unit would be unlawful. Therefore, legal action may be available and appropriate to prevent the federal government from carrying out the recommended closure of the Bradley Air Guard Unit.

V. CONCLUSION

Connecticut can make a powerful case that DOD has no realistic idea of the

cost -- that will certainly be huge -- of the full cleanup of the Groton Submarine Base, has given no realistic consideration to the long term economic impact of closure on the economy of Southeastern Connecticut, and has failed to recognize the legal implications of the State's ownership interest. Therefore, all of its conclusions based upon projected cost savings are fatally flawed, and cannot be used as the basis for a misguided decision to close the Sub Base.

In addition, the proposal to move the Bradley Air Guard Unit to Massachusetts without the express consent of the Governor not only poses significant security concerns, it also would constitute a violation of federal law.

The State has legally enforceable rights arising from the FFA, the deed restrictions, and federal law concerning National Guard units.

I will be available immediately upon request to provide any necessary elaboration, discussion or support for any of the points made here.

RICHARD BLUMENTHAL
ATTORNEY GENERAL

SUMMARY OF CONNECTICUT DEP POSITION ON BRAC COMMISSION RECOMMENDATION REGARDING SUB BASE NEW LONDON

1. THE BRAC COMMISSION'S DECISION SUBSTANTIALLY DEVIATES FROM SELECTION CRITERION 8 RELATED TO ENVIRONMENTAL ASSESSMENT AND RESTORATION.
    - IT EXCLUDED CONSIDERATION OF RESTORATION COSTS – COSTS THAT CONGRESS MANDATED DOD TO CONSIDER DURING THIS BRAC PROCESS
    - IT UNDERESTIMATED BOTH CLOSURE AND RESTORATION COSTS
    - IT FAILED TO CONSIDER THE REQUIREMENTS OF THE LEGALLY BINDING FEDERAL FACILITIES AGREEMENT THAT GOVERNS CLEANUP OF THE 20+ ALREADY IDENTIFIED SUPERFUND SITES ON THE BASE
    - IT FAILED TO CONSIDER IMPLICATIONS OF THE EXISTING DEED RESTRICTIONS.

2. THE RESULT OF THESE INADEQUACIES IS THAT THE COSTS TO THE NAVY AND TO THE COMMUNITY HAVE BEEN SIGNIFICANTLY UNDERESTIMATED.

3. CLOSURE COSTS: REPRESENT THE IMMEDIATE AND UNAVOIDABLE COSTS SOLELY ASSOCIATED WITH THE CLOSURE OF THE BASE.
    - THE NAVY ESTIMATED THESE COSTS AT LESS THAN $10MILLION.
    - CT HAD DOCUMENTED AN EXCESS OF $41MILLION IN CLOSURE COSTS, MAINLY DUE TO RADIOLOGICAL REQUIREMENTS.

4. RESTORATION COSTS WERE ESTIMATED BY THE NAVY AT $23MILLION; CT DOCUMENTED RESTORATION COSTS OF NEARLY $125MILLION PLUS ANY CLEANUP COSTS NECESSARY AS A RESULT OF THE NOT YET COMPLETED RADIOLOGICAL ASSESSMENT.

5. THE EXISTING FEDERAL FACILITIES AGREEMENT DOES NOT ALLOW THE BASE TO BE TRANSFERRED UNTIL IT HAS BEEN CLEANED UP, NECESSITATING AN ACCELERATED CLEANUP SCHEDULE TO ACCOMMODATE REUSE WITH THE INDICATED TIMELINE.

6. DEED RESTRICTIONS- THE DEED FOR SIGNIFICAN PORTIONS OF THE SUBASE CONTAINS RESTRICTIONS THAT MANDATE THE USE OF THE LAND FOR MILITARY PURPOSES OR THE TITLE TO THE SUBASE IS FORFEITED TO THE STATE.

    - THE DEED RESTRICTIONS RAISE DOUBTS ABOUT THE NAVY'S ASSERTIONS THAT PROCEEDS FROM THE SALE OR LEASE GO TO THE NAVY – ADDING FURTHER UNCERTAINTY TO THE DOD COST/BENEFIT ASSESSMENT.

7. LASTLY, THERE WERE OTHER ENVIRONMENTAL CONSIDERATIONS THAT SHOULD HAVE BEEN MORE FULLY EVALUATED WHEN COMPARING THE NEW LONDON AND KINGS BAY SITES. THOSE CONSIDERATIONS INCLUDE DREDGING, STORM SEVERITY AND FREQUENCY, AND ENDANGERED SPECIES CONCERNS – ISSUES THAT DIRECTLY IMPACT OPERATING COSTS AND RAISE YET ADDITIONAL QUESTIONS CONCERNING MILITARY READINESS.

CRITERION #6

- Connecticut has 1.2% of U.S. population yet 68% of the jobs lost in the U.S. as a result of the DoD recommendations occur in Connecticut (8,586 out of 12,684). [1]

- Potential impact of $3.3B on Connecticut's already fragile economy with 31,500 + jobs lost. It will take Connecticut a generation to recover. [2]

- Economic Impact Analysis methodology is flawed and incomplete
  - DOD converted military jobs into private sector jobs. This methodology cannot yield usable/realistic multipliers. [3]
  - Used static (point in time) model while closure happens over 5-year period.
  - The Region of Influence (ROI) used does not equal the "Functional Economic Region" The ROI is an artificially small region. It excludes important economic linkages, impacts and understates the economic impact to Connecticut. [4]
  - Incomplete account of direct jobs lost: 1,000 contractor and 2,950 spousal jobs
  - Fiscal impacts – Not taken into account
    - Loss of Federal Impact Aid – (Pupil subsidy)
    - $28.0 million in unemployment payments[5]
    - State Loses Tax Revenue: Income, Sales, and Corporate Taxes
    - Increased Municipal Costs
      - Operational cost of educational infrastructure and underutilized facilities (approximately 1/3rd enrollment from military)
      - Cost of public safety services provided by SUBASE (Fire, HazMat)
- Regional competitiveness
  - 2.5% increase in unemployment insurance rate will result in up to 3,000 additional jobs lost [6]
  - Ignores synergy between public and private sectors and destabilizes the Naval Defense Industry Cluster

CRITERION #7

- A Different definition of MSA was used in Criteria #6 than in #7 – no rationale given. New definition contains only New London County. An advantage accrues to the receiving communities in JPAT 7 terms relative to communities from which bases leave according to JPAT 6 terms. This is patently inconsistent and unfair. [7]

- 1995 Navy Study re: Homeporting of SEAWOLF class submarines [8]
  - New London, King's Bay and Norfolk were each evaluated as homeports and by a very wide margin, the preferred alternative was New London.
  - In 10 of the 14 criteria New London was 1st: Strategic Value, Operational Suitability, Quality of life, Maintenance Capability, Training Capability, Integrated Logistics Support, Ordinance Capability, Maintenance Dredging, Built Environmental Impacts, Community Support
  - Given that the only change in our SUBASE since has been a $100 million infrastructure expansion and upgrades, then what was true in 1995 still remains true in 2005!

- Regional significance of New London Re: Homeland Security
  - Northeast Midwest Institute – Unguarded Region – April 2005 [9] states that the Northeast and Midwest stand out as the nation's least guarded regions.
  - The 18 Northeastern and Midwestern states, which hold about 40% of the nation's population, account for just over 10% of the active duty military personnel located in the country. 6% of nation's population is within 100-mile radius of New London

FOOTNOTES

1. "Closure and Realignment Impacts by State", http://www.defenselink.mil/brac/pdf/Appendix_C_FinalUpdated.pdf
2. "Department of Economic & Community Development New London Sub Base Economic Impact Analysis", 2005, http://www.ct.gov/ecd/lib/ecd/Sub_Base_EIA_5.4.05.pdf
3. "Critique of JPAT Criterion 6", 2005, UCONN Center for Economic Analysis, Stan McMillen, PhD.
4. "Region of Influence Discussion Paper", 2005, UCONN Center for Economic Analysis, Stan McMillen, PhD
5. Connecticut Department of Labor Estimate, 2005, Mark Stankiewicz
6. UCONN Center for Economic Analysis Estimate, 2005, Stan McMillen, PhD
7. "Region of Influence Discussion Paper", 2005, UCONN Center for Economic Analysis, Stan McMillen, PhD
8. "Final Environmental Impact Statement: SEAWOLF Class Submarine Homeporting on the East Coast of the United States", 1995, Maguire Group, Inc.
9. "Base Closings And Military Presence In The Northeast-Midwest: The Nation's Unguarded Region", 2005, Matt Kane, Northeast-Midwest Institute, http://www.nemw.org/BRAC2005updateweb.pdf

Military Value, Costs/Savings

SUBASE NL

John Markowicz, Gabe Stern

We Will Demonstrate

- Substantial deviations from BRAC selection criteria
- Substantial deviation from force structure plan (GAO Report)
- Military value calculations flawed
- Capacity analysis flawed
- Configuration analysis flawed
- Costs understated
- Savings overstated
- Environmental and economic impacts understated

50m extra for E.B. costs

Military Value

SUBASE NL

John Markowicz

Today: 18 SSNs on 10 Piers + Sub School

Defense Base Realignment and Closure Act of 1990

SUBASE NL

Public Law 101-510, as amended by National Defense Authorization Act of Fiscal Year 2003, specifies:

- Sec. 2901(b): a "fair process"
- Sec. 2903(c)(3)(A): "consider all installations inside the United States equally…"

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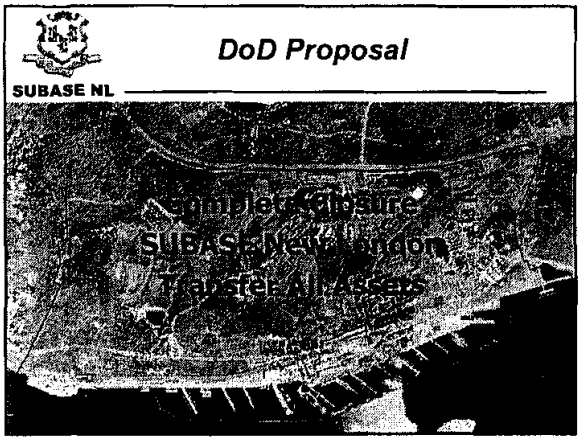

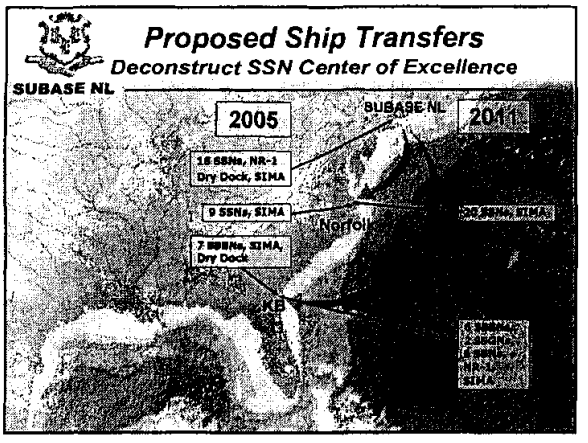

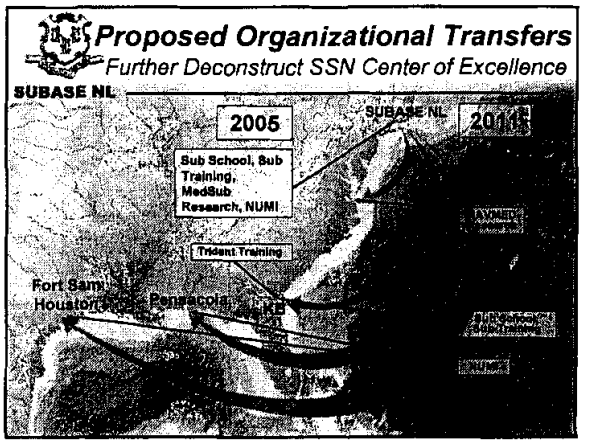

Enlisted med trng
Sub- enlisted DOC

Substantial Deviation from Criterion 1

SUBASE NL

Current and Future Mission Capabilities

- Impact on operational readiness
  - CFFC opposed recommendation to close SUBASE NL
- Impact on joint war fighting, training, readiness from flawed military value scoring
  - Unique/special mission/capabilities omitted from military value evaluation
  - No jointness/value in military value scoring
  - Separation of training from 80% SSNs not considered
  - Operational training at risk during relocation

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Military Value

SUBASE NL

- Process flaws led to systematic undervaluing of SUBASE NL
  - Questionable extra credit for irrelevant conditions
  - Disregarded relevant information
  - Overvalued irrelevant information
  - Inaccurate scoring occurred
- Failure to distinguish between surface and subsurface bases caused distorted results
- 10 of 14 bases with lower military value remain open

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Military Value

SUBASE NL

Questions SEA-3

- Does installation have ability to homeport SSBNs and their missiles?
  - 4.15 points arbitrary
  - 6.4% of KB military value
- CVN capability only other category awarded bonus points

No Bonus Points for Nuclear-Certified Waterfront

Military Value

SUBASE NL

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Military Value

SUBASE NL

Questions Asked, Answered and Deleted

SEA-14

List/describe any unique capabilities/missions

SEA-15

List/describe any specialized capabilities/missions

SEA-22

List any unique operational training facilities

Relevant Questions Disregarded and Led to Systematic Undervaluation of SUBASE NL

Military Value

SUBASE NL

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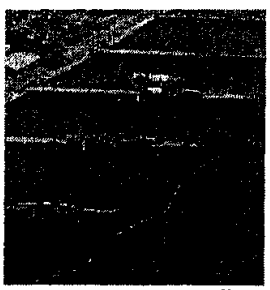

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Military Value

SUBASE NL

Irrelevant Questions

SEA-25

What is transit distance to anti-air warfare range?

KB 3.01 SUBASE NL 2.47

SEA-26

What is transit distance to naval gunnery range?

KB 2.41 SUBASE NL 1.62

Irrelevant Questions Overvalued and Led to Systematic Undervaluation of SUBASE NL

Military Value

Operational Training

SUBASE NL

- 9 of 11 operational training questions deal only with distance from facilities
- One question addresses capacity, but <u>only</u> of C, F, and pipeline training (50 mi)
- One question addresses small arms capacity

Military Value

SUBASE NL

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2

Military Value

SUBASE NL

Questions SEA-4 and SEA-5

- Total linear feet of berthing piers/wharves in categories of Adequate – Substandard – Inadequate

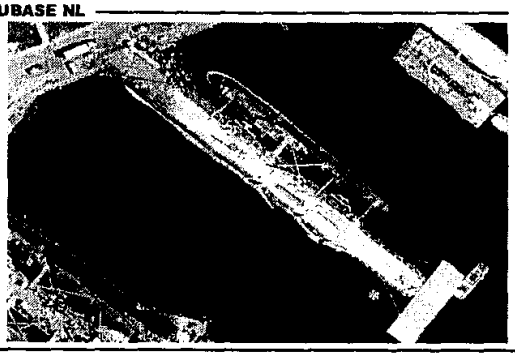
KB MILVAL	1.89	SUBASE NL MILVAL	0.00
KB CGE	13.5	SUBASE NL CGE	16.28

- Total linear feet of berthing piers/wharves where construction/renovation since 1990

KB MILVAL	[illegible]	SUBASE NL MILVAL	[illegible]

Pier at SUBASE NL

SUBASE NL



Military Value

SUBASE NL

- Process flaws led to systematic undervaluing of SUBASE NL
  - Questionable extra credit for irrelevant conditions
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- Failure to distinguish between surface and subsurface bases caused distorted results
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5

Military Value Adjustments

SUBASE NL

Piers	1.24
Bonus	4.15
Maintenance	0.73
Deperm	0.69
Nuclear Weapons	1.55
ESQD	1.54
AAW Range	0.54
Gun Range	0.79
Distance to 50 Fathoms	0.29
Dredging	0.34
Hospital Catchment	1.01
Total Adjustments	**12.87**

[redacted]

(KB MILVAL = 63.51)

[redacted]

SUBASE NL

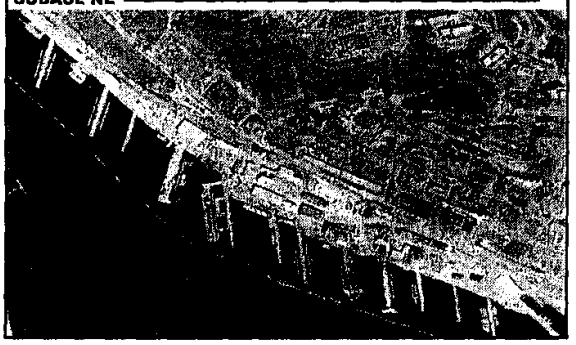
Substantial Deviation from Criterion 2

Availability and Condition of Land, Facilities

- SUBASE NL has surge capability vs. no capability
- Modern, capable piers exist vs. have to build
- No nesting at SUBASE NL vs. nesting
- Unique Sub School exists vs. have to build
- SSN maintenance facilities exist vs. have to build
- CGE standard gives distorted picture of pier capacity

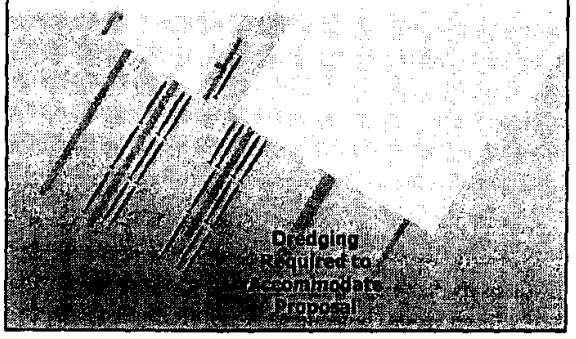
SUBASE NL

Existing SUBASE NL Berthing



SUBASE NL

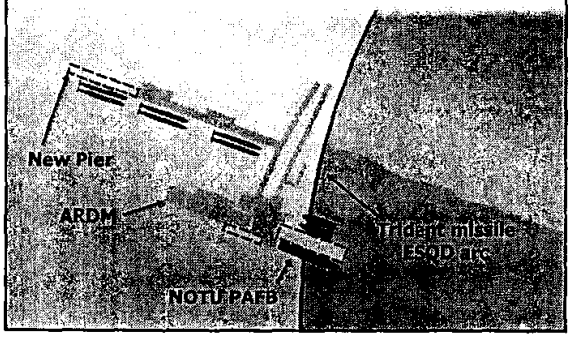
Proposed NORVA Berthing



Declare
[illegible]
Port [illegible]

Proposed Kings Bay Berthing

SUBASE NL



Substantial Deviation from Criterion 3

SUBASE NL

Accommodate Contingency, Mobilization, Surge and Future Force Requirements

- Undecided future submarine force structure
  - March 2005: 21% drop in SSN force level
  - Inconsistent with prior studies
- Proposal eliminates surge capacity for Atlantic SSNs
- SSN surge capacity available in SUBASE NL
- Difficult (impossible?)-to-reconstitute nuclear waterfront
- Configuration analysis predetermined recommendation

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Configuration Analysis

SUBASE NL

Constraints Reflect Pre-Decisions

- One strategic (ballistic missile) nuclear submarine homeport per coast
- Two ports on each coast capable of cold iron berthing a nuclear powered carrier

Can't change the operation of MV
w/ these constraints —
They drive process

Redshirted

SUBASE NL

Exemptions from Consideration

- Naval Station Everett: Decision postponed until after Quadrennial Defense Review

  NOTE: NS Everett and SUBASE NL military value scores exactly the same (50.68)

- SUBASE San Diego: Remains open to align industrial facilities/capabilities

SUBASE NL

Substantial Deviations from Criteria 4, 5

Gabe Stern

Cost of Operations, Manpower Implications: Extent/Timing of Potential Costs/Savings

- COBRA is DoD non-budget quality costing model
- Navy introduced flaws in COBRA models
  - Mixed sources of inputs
  - Mixed quality of inputs
  - Omitted costs, e.g., environmental/non-DoD
  - Overstated savings
- Overstated savings drove results

SUBASE NL

Substantial Deviation From Criteria 4, 5

Cost of Operations and Manpower Implications

- Cost of proposal greatly understated
- Manpower shift doubles personnel at KB
  - Must substantially build within existing base
  - No existing SSN maintenance and supply support
- Personnel transfers included as savings

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Costs Underestimated

SUBASE NL

1993

- Transfer 15 SSN's and 2 Floating Drydocks from Groton to Norfolk and KB
- Use 4 Sub Tender for Maintenance/Repair
- Cost: $300M ('93 dollars) = $450M ('05 dollars)

2005

- Transfer 17 SSN's and 1 Floating Drydock from Groton to Norfolk and KB
  - Build New SSN Repair Capability at KB
  - Transfer Sub School from Groton and Rebuild Sub School in KB
  - Close and Fully Remediate SUBASE NL
- Cost: $680M ('05 dollars)

Savings Overstated

SUBASE NL

- Assumes overcapacity of billets/persons at KB and Norfolk
- Claims savings from elimination of billets
- Same billet/persons and related savings could be eliminated without closure of SUBASE NL

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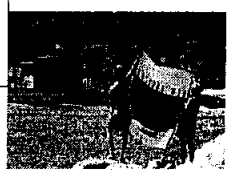
COBRA Analysis
Overview

SUBASE NL

- One-time military construction costs underestimated ($190M)
- One-time moving costs understated ($31M)
- Environmental closure costs understated ($31.1M)
- Environmental remediation costs ignored ($125M)
- Recurring personnel savings overstated ($84M/yr)
- Recurring other unique costs underestimated ($42M/yr)



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Military Construction Costs
Sub School Construction

SUBASE NL

Sub School Training Facilities

- Navy used a construction cost of $211/sq ft
- Recent experience averaged $325/sq ft due to higher structural and services requirements
- Difference of $114/sq ft times 415,000 sq ft equals $47M
- For an equivalent footprint, add $28M
- Per FEMA report on soil conditions, add *minimum 20% to KB construction cost* ($30+M)

Personnel Costs
Elimination of Billets

Personnel Costs
Elimination of Billets

SUBASE NL

Examples of Overstated Billet Reductions Include:

- Today, 528 medical billets at SUBASE NL service 8,045 personnel
  - 62 to be relocated to service 6,485 relocated personnel
- Eliminated all billets (181) related to services normally variable with population size

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SUBASE NL

Other Unique Costs

Contractor Billets

- Underestimated by $42M/yr (430 billets replaced by 143)
- 430 mission essential contractor billets at $57/hr eliminated ($50M) at NSSF & NRMD
- KB added 37 civilian billets at $29/hr ($2M)
- Norfolk NSY added 106 civilian billets at $29/hr ($6M)

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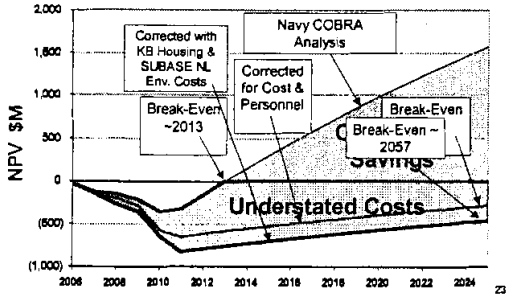
SUBASE NL

Comparison of Potential Savings Analysis



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SUBASE NL

Payback Improperly Considered

Correcting COBRA for Understated Costs and Overstated Savings Shows:

- Savings do not exceed costs until the year 2057, even using COBRA's artificially low discount rate
- No real payback

BRAC Commission

Executive Correspondence
DCN 4687

JUL 1 4 2005

Received

11 July 2005

Dear Chairman Principi,

I am writing in comment on the recommendation to close Submarine Base New London. I believe this is unthoughtful. The submarine force level study used to support the recommendation is not defendable and no consideration was given to the impact on the cost of building submarines at Electric Boat.

This naval administration has indicated that we have the wrong Navy - they prefer smaller, swifter surface ships rather than aircraft carriers and submarines. While not subjecting the matter to open discussion, they have taken many actions to advance this premise. The recommendation to close the Submarine Base is the most unthoughtful of the lot.

The attack submarine force level has undergone some 14 studies in the past 12 years. The current Navy study came up with the lowest number. It had essentially no submariner input, no input from the Fleet Commanders and inadequate peer review. This contrasts with the Office of the Secretary of Defense (PA&E) study of one year earlier. This study included submariner input, Fleet Commander input and was properly peer reviewed. It reached a number some 20% higher. I have some experience with such studies. The Navy study does not meet professional standards and is not defendable.

Another matter in which I have some experience is the cost of submarines. The Navy has been pressing Electric Boat to reduce the cost of new construction submarines. Some progress has been made. In the 90s, I encouraged Electric Boat to take over the maintenance activities at the Submarine Base. It has worked well and reduced overhead at Electric Boat some $50M per year. If the Submarine Base closes, this advantage is lost and the cost of new construction submarines will rise. I have trouble believing the Navy considered this long term impact on the industrial base.

Other less quantifiable issues revolve around synergies. The Submarine Force is small with only some 30,000 submariners in the Navy. Driven by the exigencies of the platform they have always been a compact organization with relatively low overhead.. Support groups reside near the waterfront to better reflect the realities of the boats. This closure would scatter these groups, removing some from direct contact with the waterfront.

The Submarine Force is important to the defense of our national interests. It has the only truly stealthy platforms in our armed services and is the heart of our strategic nuclear deterrent. It has adapted to the changing nature of naval warfare for over 100 years. It is a rare asset and sets our Navy apart. The closure of the Submarine Base will not mean the end of the Submarine Force but it will start many years of unnecessary churn. The recommendation to close the Submarine Base is not well founded and should be overturned.

Thank you for your consideration.

Bruce DeMars
Admiral, U.S. Navy (Retired)

July 20, 2005

The Honorable Anthony Principi
BRAC Commission
Polk Building
Suites 600 and 625
2521 South Clark Street
Arlington, VA 22202

Dear Chairman Principi:

We respectfully urge you to remove Naval Submarine Base New London from the Base Realignment and Closure List. The Department of Defense's recommendation to close SUBASE New London is based on substantially flawed assumptions and analysis, as well as a force structure plan that assumes unacceptable risk. Closing SUBASE New London would critically injure the capabilities and readiness of the United States' submarine force, the Navy and the Armed Forces at large. The following text and attachment address some of our principal concerns about the recommendation to close SUBASE New London.

Force Structure Plan

The force structure plan used to justify closing SUBASE New London represents a substantial deviation from the BRAC criteria. A future force level of 37 to 41 attack submarines could not meet the United States national security needs without assuming unacceptable risks. Already, the Navy reports that U.S. Combatant Commanders are collectively asking for 150 percent of the critical mission days that the submarine force can provide. The Armed Forces should not depend on unproven conceptual operations and nonexistent weapon systems for missions twenty years from now. Similarly, we should not depend on an assessment of the threat environment in 2025. The U.S. intelligence community, we know, has consistently underestimated the military modernization programs of China, which will have three times as many attack submarines as the United States by 2025, given current trends.

Though long-range projections can help the Navy plan for the future, they should not be allowed to unilaterally eliminate force level options or flexibility in the fleet. Unfortunately, the 2005 BRAC recommendation on SUBASE New London appears to do just that, using a 21 percent reduction in the attack submarine fleet to justify an unwise and imprudent drawdown in subsurface infrastructure that will produce nominal savings at most.

The attack submarine is the best anti-submarine weapon; yet, while the rest of the world ramps up production, the 2005 Force Structure Plan would predetermine a dangerously small subsurface fleet if accepted. Fundamental questions remain about the optimal size and character of the U.S. submarine fleet. A decision to close SUBASE New London would eliminate the fleet's surge capacity, terminating the force level debate prematurely. This would prevent the Navy from taking advantage of exciting undersea warfare and propulsion technologies that could drastically reduce the size and cost of future submarines. These breakthroughs in design and

production could help the Navy procure more attack submarines with only modest spending increases.

Center of Excellence for Undersea Warfare

SUBASE New London is the nation's center of excellence for undersea warfare. The base is surrounded by the Electric Boat Corporation, Submarine Development Squadron 12, the Naval Undersea Warfare Center, the Naval War College, the Institute for Undersea Exploration, and several universities with world-class research institutions. The area is also home to world-class subcontractors and a highly skilled labor force intimately familiar with submarine design, construction and maintenance. This convergence creates unique readiness and training opportunities for the Navy, military value wrongly dismissed in the Navy analysis.

Military Value

The Department of the Navy underestimated the military value of SUBASE New London and, as a result, substantially deviated from the BRAC selection criteria. Attachment 1 provides detailed examples of flawed analysis used to incorrectly conclude that the base should be closed.

Other Criteria

Estimated cost savings appear to have driven the recommendation to shut down SUBASE New London. An independent review of the analysis clearly shows that the Department of Defense underestimated the costs of moving and reconstituting SUBASE New London's assets, while overestimating savings from the proposed closure.

Naval Submarine Base New London is a proven strategic asset. It would take the Navy generations to reconstitute its unique military value elsewhere. That is years the Armed Forces cannot afford to lose, even if the nation could pay the financial and readiness cost of scattering the base. A final decision to close SUBASE New London would undermine the subsurface fleet and predetermine a high-risk force level for little or no gain. We urge you to protect the nation from this mistaken recommendation.

Sincerely,

Carlisle A. H. Trost, Admiral, USN (Ret.)

Attachment 1

Substantial Deviation in Military Value Scoring:

In scoring the Submarine Base New London, the Navy analysis team did not grant extra points for hosting the nation's only submarine school, opting instead to treating it as a "tenant command." Naval Submarine School (SUBSCOL) is the premier subsurface educational center in the world. Its co-location with 18 home ported fast attack submarines affords the Navy significant readiness and training advantages largely because sailors can stay with their boats (and families) for months while they learn and practice. Additionally, the Navy gains from the institution's proximity to the Electric Boat Corporation, builder and maintainer of many SUBSCOL assets, including its most advanced trainers. Basic military judgment dictates that SUBSCOL is not comparable to a local damage control trainer; yet that is how the institution was valued.

The Navy also deviated from the BRAC criteria when it gave SUBASE New London a low military value score for its considerable berthing capacity. SUBASE New London has piers to safely and efficiently berth at least 20 attack submarines. Conversely, moving three squadrons to Norfolk Naval Station and Naval Submarine Base Kings Bay would necessitate an unprecedented level of nesting – an operational and readiness hazard – even after completing significant military construction projects. That SUBASE New London received more points for modern piers than Naval Submarine Base Kings Bay, but zero points for cruiser length equivalents, highlights the irrationality of this scoring metric. Fleet Forces Command opposed any scenario to close SUBASE New London during the 2005 BRAC round because it would hurt the submarine force's flexibility, readiness, and capabilities on the East Coast. We agree with that assessment.

The Navy's use of pier space to measure extra capacity in the subsurface fleet is inherently flawed because attack submarines, though relatively compact in terms of displacement and length, require a high level of maintenance. At the same time, the crews of attack submarines are small compared with their surface counterparts, but need relatively intensive training and education. The infrastructure – nuclear waterfront certification, intermediate maintenance, training, etc. – to support attack submarines and their crews is sophisticated and expensive. Once lost, such assets are especially difficult to reconstitute. These realities also help explain why the Fleet Forces Command argued against closing SUBASE New London.