

**State of Connecticut
Summary of Cost/Savings Analysis
for Proposed Closure of Naval Submarine Base New London**

I. Introduction

At the July 6, 2005, base closure hearing in Boston, State of Connecticut analyst Gabe Stern presented the 2005 Defense Base Closure and Realignment Commission with Connecticut's analysis of the costs and savings that would result from the proposed closure of Submarine Base New London.

That analysis was summarized in Connecticut's Supplemental Data Submission (SDS), forwarded to the Commission on July 18, 2005.

In a meeting with the BRAC Commission staff on August 2, 2005, Hank Teskey, Connecticut's COBRA analyst, provided further explanation based on information received from the Navy BRAC staff and other sources subsequent to the hearing. Also at that meeting, Connecticut Department of Environmental Protection (DEP) Commissioner Gina McCarthy provided additional detail on environmental closure and remediation costs.

This paper summarizes Connecticut's numbers and includes a final COBRA alternative for the one used by the Navy to evaluation Scenario DON-0033B. For easy reference by the BRAC Commission and staff, it is done in the same format as our hearing presentation, SDS, and Aug. 2 briefing document.

Our SDS included the Navy's COBRA run in support of DON-0033B, plus three alternatives for that scenario. As indicated to the BRAC staff in our August 2 meeting, our presentation of that date – as summarized in this paper – is meant to substitute for those alternative scenarios.

Summary of the Analysis

The following table summarizes Connecticut's analysis of the Navy's costs and savings as depicted in the Navy COBRA for DON-0033B, comparing the Navy's conclusions with those of Connecticut:

Scenario	One-time (Costs)	Net Implementation (Costs) or Savings	Net Annual Recurring Savings	Payback Period	20-Year Net Present Value Cost or (\$avings)
Navy	\$ (679.6)	\$ (345.4)	\$ 192.8	3 years	\$ (1,576.4)
Connecticut	\$ (1,121.4)	\$ (1,090.6)	\$ 34.5	100 years +	\$ 640.5

As seen in the table, the Navy's one-time cost to close is \$680 million, compared to \$1.1 billion for Connecticut. The Navy's annual recurring savings is \$192 million, with a payback period of three years. This contrasts dramatically with Connecticut's finding of an annual recurring savings of only \$34.5 million, which coupled with the one-time cost of \$1.1 billion requires a payback of more than 100 years (the COBRA model does not calculate payback past 100 years). The Navy's net implementation cost is \$345 million, compared to \$1 billion for Connecticut.

As stated in the SDS, the Department of Defense (DoD) introduced flaws into the COBRA model such as mixed sources of inputs, mixed quality of inputs, omitted costs and overstated recurring savings. It is primarily the overstated savings that drove the Navy cost benefit COBRA results and skewed the comparability and value of the COBRA output. Additionally, one-time and recurring costs that would be incurred by the federal government, but not directly by DoD, were ignored in violation of BRAC Criterion 8. We do not, however, include these in our analysis.

Also overlooked were significant environmental costs and increases in submarine construction costs and quality that will result from the closure of SUBASE New London. These were described in the July 6 testimony of DEP Commissioner McCarthy, Electric Boat (EB) President John Casey, and former Assistant Secretary of the Navy George Sawyer. Commissioner McCarthy reiterated her department's findings in the August 2 meeting.

The following table summarizes the major areas of misstated costs and savings in the Navy's COBRA analysis, as conveyed by Mr. Teskey and Commissioner McCarthy in the August 2 meeting:

COBRA Analysis Overview	
One-time military construction costs underestimated:	\$269 million
One-time moving costs understated:	\$31 million
One-time environmental closure costs understated:	\$27.5 million
One-time environmental remediation costs ignored:	\$125 million
Recurring personnel savings overstated:	\$84 million/year
Recurring other unique costs underestimated:	\$42 million/year
Recurring loss of reduced overhead at EB unaccounted for:	\$50 million/year

II. One-Time Military Construction Costs Underestimated (\$269 Million)

DoD's analysis underestimated the cost of reconstructing the SUBASE New London Submarine School training facilities. The Navy used a construction cost of \$211 per square foot to construct new facility at Kings Bay. 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 Information Technology services, security to a secret level, and the extra static and dynamic loading that 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 cost of \$47 million.

To construct an equivalent footprint to match the 10 buildings that exist at SUBASE New London, the cost would increase another \$28 million.

Moreover, the Submarine School estimate does not take into account site issues that exist at Kings Bay. According to a Federal Emergency Management Agency (FEMA) report on the soil conditions at Kings Bay¹, 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 recommended adjustment for Submarine School construction at Kings Bay is \$105 million (\$47M + \$28M + \$30M).

The DoD proposal also showed a shortfall in BEQ military construction 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, for 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/bed, it totals \$20 million 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 million.

Our view of the Navy's cost treatment has evolved as the Navy has responded to questions about apparent omissions and inconsistencies. For example, in viewing the Navy COBRA direct inputs it appears that the new pier at Kings Bay is priced at half the cost per square foot of the new pier at Norfolk, with the Norfolk price being in accordance with published DoD and industry standards. Upon questioning, however, the Navy offered that the Kings Bay data submission on pier costs is "unbundled," with

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 located a single copy of the study at Kings Bay and informed us that it is not readily duplicated but can be viewed upon request.

portions of the costs included in several less obvious line item COBRA entries. The Norfolk pier number is “bundled” into a single data entry that is easily identifiable.

After further dialog with the Navy, we have determined that the Kings Bay pier costs are understated by \$10 million. We agree in part with the Navy that portions of the pier’s outfitting costs are included elsewhere in the COBRA model. However, we disagree with the Navy’s allocation of various facility services to the pier. For example, the Navy over allocated expenses such as HVAC, water and electrical to the pier. The total pier cost per the COBRA model is \$14 million. When the aforementioned services are properly allocated, the cost totals \$24 million. Thus, there is a net understatement of \$10 million.

We have also determined that the proposed lease termination, refurbishment, and re-location of the floating dry-dock RESOLUTE (ARDM-10) from Seattle to Norfolk, which the Navy had estimated at \$39 million, is unlikely due to the age (60 years) and condition of the dock. This information is based on discussions with personnel currently managing the floating dry-dock SHIPPINGPORT (ARDM-4), located at New London. They believe, based on their direct knowledge and discussions with Navy personnel, that the proposal in the DoD COBRA analysis to upgrade a World War-II era dry-dock that cannot currently handle Virginia or Seawolf-class submarines is unrealistic. A much more likely outcome would be construction of a new floating dry-dock for approximately \$93 million, as proposed in DoN-0004. This would represent a net increase of \$54 million over the Navy assumption. Please note that dry-dock capacity for both Virginia and Seawolf-class submarines already exists at New London and requires no capital investment.

Following is a table summarizing the difference between the Navy’s one-time military construction costs and those of Connecticut:

One-Time Military Construction Costs		
(in Millions)		
	Navy	Connecticut
DON-0033B	\$ 680	\$ 680
Submarine School		\$ 105
Kings Bay BEQ		\$ 20
Kings Bay Housing		\$ 80
Kings Bay Pier		\$ 10
New Dry-Dock @ Norfolk		\$ 54
TOTAL	\$ 680	\$ 949

III. One-Time Moving Costs Understated (\$31 Million)

As stated at the July 6 hearing and in our SDS, 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. Based on Electric Boat experience, this is estimated to cost \$16 million. In addition, the cost of personnel relocation is understated by about \$15 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. These additional personnel relocations are discussed under recurring costs, below.

IV. One-Time Environmental Closure Costs Understated (\$27.5 Million)

The Navy acknowledged \$9.5 million in installation environmental closure costs and another \$.5 million for a radiological survey of the ARDM-4 floating dry-dock. Resource Conservation and Recovery Act (RCRA) and Underground Storage Tank (UST) closure costs are essentially omitted, and Navy radiological cost estimates are extremely low compared with 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 considers the remediation costs.

DEP reviewed only installation costs and not the ARDM-4. It estimated the RCRA costs at \$4.3 million, UST closure costs at \$1.2 million, and the radiological cleanup cost at \$31.5 million, for a total of \$37 million. The difference between this amount and the Navy’s \$9.5 million installation estimate is \$27.5 million. Connecticut DEP Commissioner McCarthy provided detailed support for the radiological expenses at the August 2 meeting with BRAC staff.

V. One-Time Environmental Remediation Costs Ignored (\$125 Million)

As stated by Connecticut at the July 6 hearing, the Navy has inaccurately excluded remediation from its COBRA analysis. The estimate of \$23 million for remediation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) may be reasonable for the items it covers. However, the reality is that closure would have to address much more than this figure reflects.

In addition to CERCLA, full remediation must comply with RCRA, UST, PCB and Pesticide requirements. Connecticut has identified \$125 million worth of work to properly prepare the base for transfer and re-use. Detailed accounting in support of this amount was provided in the SDS and by Commissioner McCarthy at the August 2 meeting with BRAC staff.

Moreover, the Federal Facilities Agreement (FFA) requires cleanup before any transfer of the Navy property. (Please see our SDS, Criterion 8, Attachment 4, for a detailed memo from the Connecticut State Attorney General on this issue.) Therefore, in order for the Navy to transfer the property before the 2011 BRAC implementation cutoff, these costs must be included in the COBRA analysis.

VI. Recurring Personnel Savings Overstated (\$84 Million/Year)

Of the 46 functions considered in the Navy's COBRA, recurring personnel reduction savings are overstated in 18 of those functions by a wide range of factors. Over all functions, this overstatement averages about 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.

The DON-0033B scenario 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 significant Navy-documented examples of overstated billet reductions concern medical personnel and personnel funded under Base Operating Support (BOS) lines.

Today, 533 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. Subsequent to its July 1 report to the BRAC Commission, the Government Accountability Office (GAO) found that 214 of the medical billets at New London are being eliminated outside of the BRAC process and, thus, should not have been counted as savings. This reduces the claimed recurring savings by \$18 million.

Another item overlooked in DON-0033B is the cost to provide medical services to armed services retirees in the New London area. Once we pointed this item out to the Navy, they agreed and calculated this cost to be \$5 million per year.

With respect to BOS, of the 1,188 BOS billets at SUBASE New London, only 283 billets were added at Kings Bay and Norfolk combined, with a plus-up to non-payroll BOS of \$3 million -- equivalent to about 50 civilian billets. This would be a relocation equivalent to 333 billets, far below the 594 billets that the standard COBRA algorithm of 50% fixed/ 50% variable would seem to have required. Some economies might be expected, yet these ratios defy common sense.

Viewed differently, SUBASE New London could remain open and outsource its BOS activities. If it were to do so, 452 military billets would be replaced by 372 civilians

(due to military duties, enlisted personnel only produce the equivalent of 33 hours of work per week). The 451 military billets cost \$39 million, whereas the cost of 372 civilians is \$22 million. This equates to a new recurring savings of \$17 million.

Finally, as described generally in the GAO report of July 1, 2005 (GAO-05-785, p. 104), many SUBASE New London billets were already scheduled for elimination. The Chief of Navy Installations (CNI) initiated these eliminations. For example, SUBASE New London has already experienced a reduction of non-medical billets from 1,223 as of September 30, 2003, to 994 today. This billet reduction results in an overstatement in the Navy COBRA model in recurring savings of \$19 million. This savings should not be attributed to BRAC. Significant further CNI reductions are planned at New London through 2011. These plans are current, assume continued operation of the SUBASE, and are not related to BRAC.

VII. Recurring Other Unique Costs Underestimated (\$42 Million/Year)

Four hundred thirty-eight 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 one contractor employee replacing 1.6 enlisted personnel.

We believe, based on discussion with EB, 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. It is worth noting that in the original data call, Norfolk requested 207 maintenance billets at an average of \$87 per hour (\$36 million/year) to support two-thirds of the New London submarines. This request was apparently ignored.

VIII. Additional Electric Boat Overhead (\$50 Million/Year)

EB currently performs submarine overhaul and repair work at its shipyard in Groton. As EB President Casey testified at the July 6 hearing, this work absorbs \$50 million of total EB overhead per year. If this work were lost, this overhead cost necessarily would be applied to new submarine construction.

IX. Summary of Cost and Savings Analysis

The Navy claims a one-time cost of \$680 million and a net implementation cost of \$345.5 million. By the end of the Navy's study period in 2011, they claim a net present value savings accrual of about \$1.5 billion. The Navy analysis predicts a break-even point of 2014 (Attachment 1).

Correcting for one time cost underestimates, improper crediting of transferred personnel billets, ignored environmental remediation costs, and inadequate submarine maintenance costs, eliminates any savings in the study period, and results instead in a one-time cost to the nation of \$1.121 billion. Break-even would not be realized for more than 100 years, well beyond the Navy's 2025 study period.

X. Adjusted COBRA Scenario

The one time cost and recurring savings resulting from the Connecticut adjustments are illustrated in the attached COBRA summary run sheets. Details of this run 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. We have inquiries to the Navy pending on GMH housing, cost impacts to submarine construction, conversion and alteration, and maintenance and repair. The Navy's responses may suggest further adjustments to the COBRA analysis and may make a material difference to the analysis presented here. We will immediately notify the BRAC staff of the implications of any new information on COBRA output.

Here is a summary of the COBRA runs provided today:

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 versus the Connecticut refined scenario detailed below.

Attachment 2: CR DON-0033B - COBRA CT Corrected Scenario.

This is the Navy's COBRA run adjusted to correct for the one-time cost underestimates, improper elimination vs. transfer of personnel billets, ignored environmental remediation costs, and inadequate submarine maintenance costs as identified by our analysis.

XI. Discussion Point: DoD Net Present Value Discount Rate

The attached Connecticut COBRA run uses the DOD discount rate of 2.83% to determine Net Present Value (NPV). While we have not changed this value in our run, we strongly note that for debt financed economic evaluation, 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%.

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 the 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 2.83% 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 about \$300 million in the Navy COBRA run.

XII. Modern Base with Historic Past

SUBASE New London is a modern submarine base with an historic past. The base is a state-of-the-art center of excellence in which the Navy has invested some \$200 million over the last decade, and \$120 million in the last five years. SUBASE New London has the most modern berthing of any submarine base on the East Coast. In fact, 40% of the utilized facilities at the base were built after 1980. The base has the modern infrastructure in place to support the strategic mission of our attack submarines (see Attachment 3 for detail).

XIII. Summary

The Navy did not identify the full one-time expenses associated with the closure of SUBASE New London and the movement of its core functions and tenant commands to Virginia, Georgia, Maryland, Texas and Florida. At the same time, the Navy claimed recurring savings that cannot be attributed to the closure. The understatement of key military construction costs and overstatement of personnel savings appear to be the result of a well-defined process that was ultimately hampered by rushed data collection, verification, and analysis.

Though time was short, the State of Connecticut has endeavored to present the valid costs associated with the closure of SUBASE New London. The one-time costs of the closure are almost twice what the Navy has suggested. More significant, the recurring savings – the most determinative factor in calculating cost-benefit -- are less than \$35 million as opposed to the \$193 million a year the Navy asserts. Rather than save the nation's taxpayers \$1.6 billion over 20 years as the Navy asserts, the closure of SUBASE New London would actually cost the nation \$641 million over the same period (see graph on the next page).

Moreover, as communicated by Connecticut to the BRAC Commission at the July 6 hearing and subsequently, closing SUBASE New London to save money for DoD represents a national security risk. It would be a tragedy to destroy the world's premier center of excellence for submarine warfare and jeopardize America's sub-surface dominance when there are no demonstrable savings to the U.S. taxpayer.

The Connecticut team very much appreciates the BRAC Commission's consideration of the submission.

SUBASE New London
Talking Points
August 9, 2005

Newness

- SUBASE New London has a great history as the Nation's first submarine base. But it's important not to overlook the fact that the base is also a state-of-the-art center of excellence in which the Navy has invested some \$200 million over the last decade -- \$120 million in the last five years.
- In fact, 40 percent of the utilized facilities at the base were built after 1980.
- SUBASE New London has the most modern berthing of any submarine base on the East Coast.
- Recent projects like the \$27 million for the BEQ, the \$23 million for the Naval Ambulatory Care Center and \$6 million for the Dental Clinic have improved the lives of enlisted personnel, civilian and retirees.
- Other investments like the \$6 million for new security gates and \$11 million for waterfront improvements have increased the security and efficiency of the SUBASE.
- SUBASE New London is a very modern submarine base with an historic past. It has the modern infrastructure in place to support the strategic mission of our attack submarines. We've made this point with the BRAC Commission and will continue to do so.



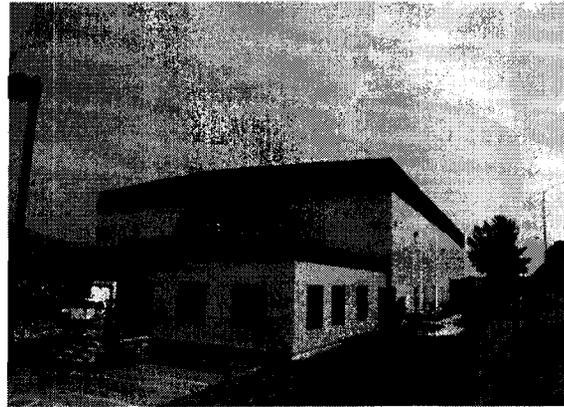
1990 — Child Development Center
\$3,000,000



1997 — Navy Youth Center
\$3,000,000



2004 — Pier 17 North Submarine Berth
\$1,460,000



1994 — Hazardous Waste Transfer Facility
\$1,450,000



2003 — IBU-22
\$1,500,000

Additional Improvements Not Pictured

1994 — Turbine Generator, \$6,600,000

1995 — Hazardous/Flammable Warehouse,
\$5,000,000

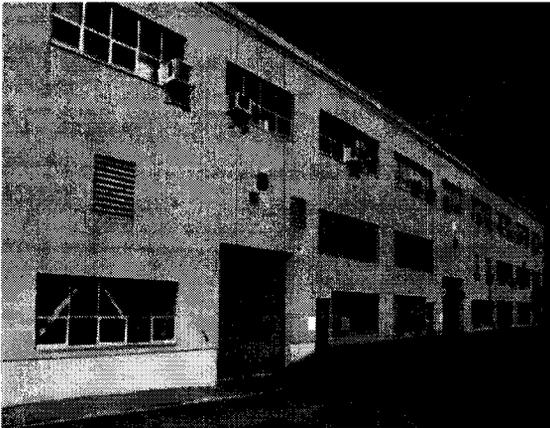
1996 — Ordnance Magazines, \$2,850,000



2002 — Navy Lodge
\$7,000,000



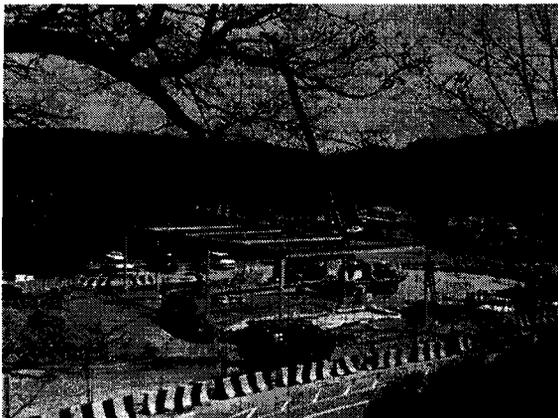
1990 — Advanced Engineering Training
Facility, \$5,889,422



1992 — Submarine Maintenance Facilities
Expansion, \$5,800,000



2004 — Naval Reserve Center
\$4,000,000

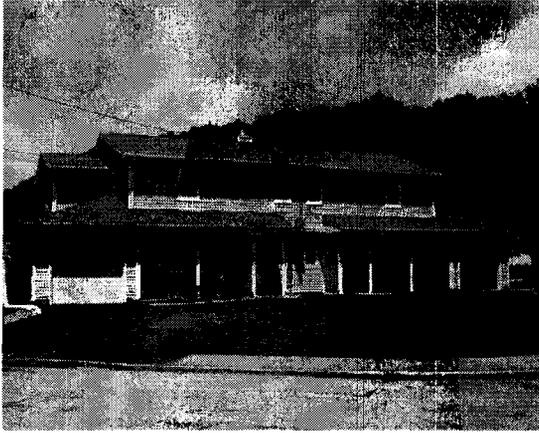


2003 — Security Gate 7
\$3,785,000

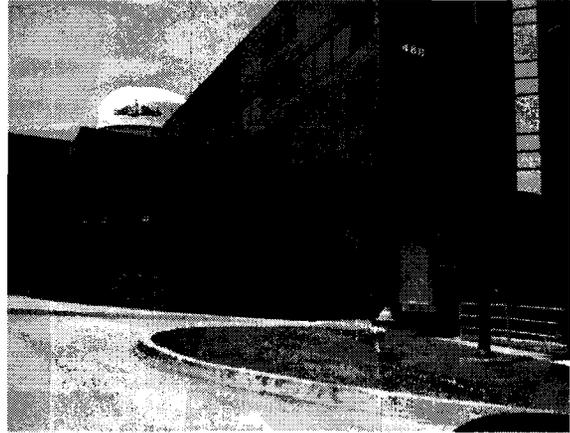


2003 — Security Gate 1
\$4,064,000

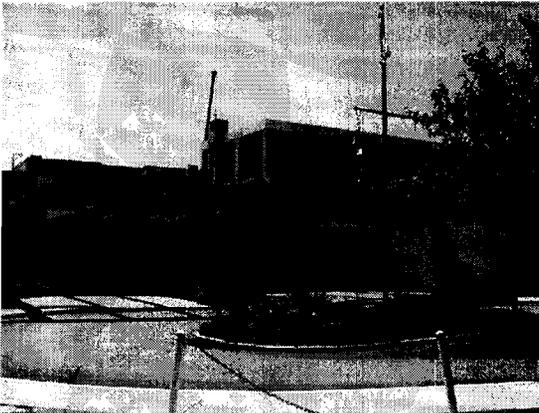
Selected Recent Improvements at SUBASE New London



Ongoing — Housing/Family Service Center
\$52,000,000



1990-98 — BEQ Renovations
\$27,000,000



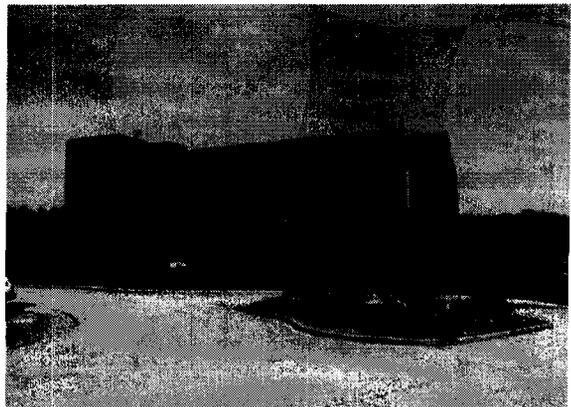
Ongoing — Naval Ambulatory Care Center
Renovations, \$23,000,000



2004 — Dental Clinic
\$6,000,000



2001 — Drydock Improvements
(USS Dallas inset), \$3,300,000



1993 — Basic Enlisted Submarine School
\$11,600,000