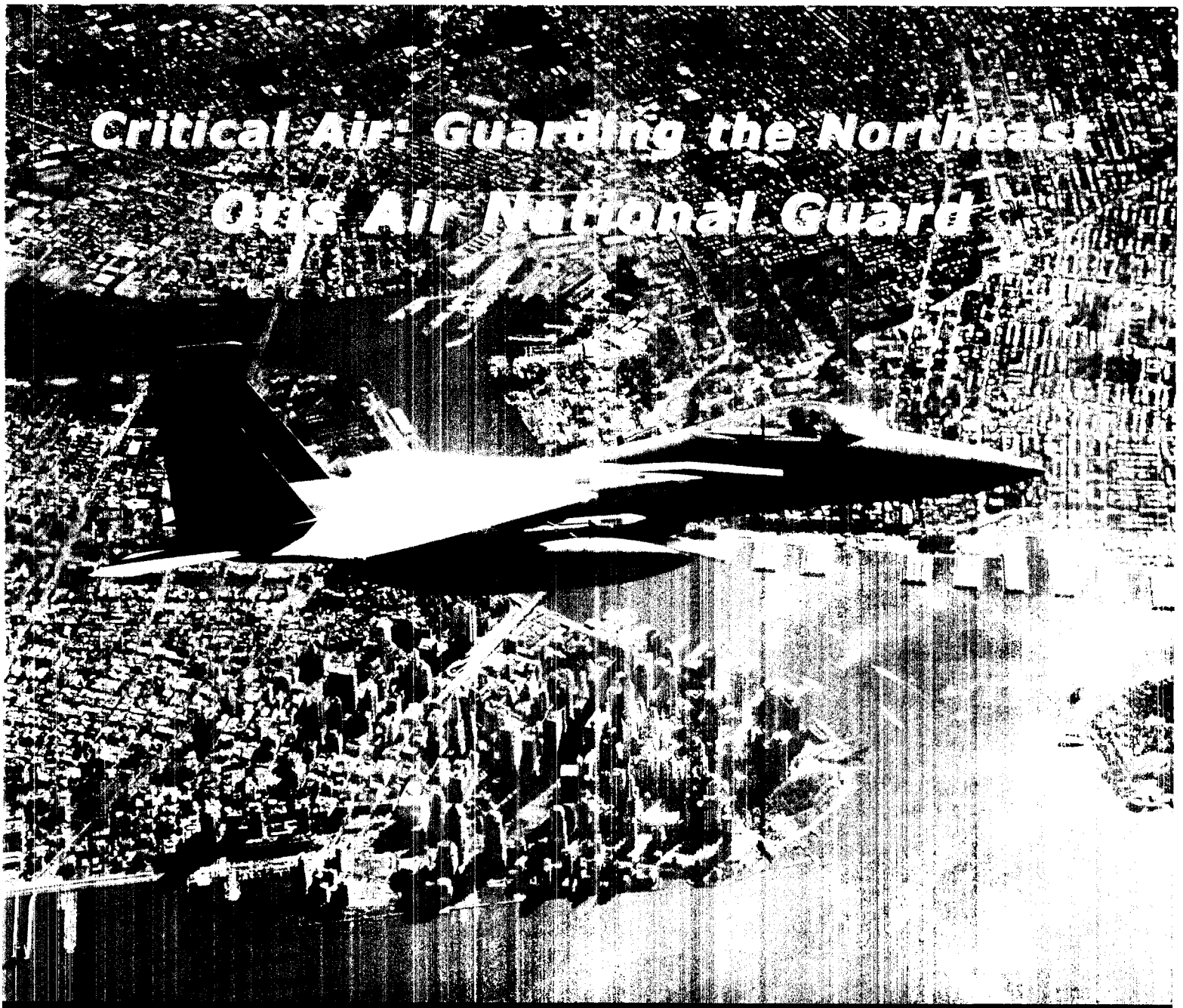
DCN 7762



Commonwealth of Massachusetts

Mitt Romney, Governor
Edward M. Kennedy, Senator
John F. Kerry, Senator
William D. Delahunt, Congressman

Critical Air: Guarding the Northeast
Otis Air National Guard Base
August, 2005

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Letter of Transmittal/Executive Summary

EDWARD M. KENNEDY
MASSACHUSETTS

United States Senate

WASHINGTON, DC 20510–2101

August 12, 2005

The Honorable Anthony J. Principi, Chairman
Base Realignment and Closure Commission
Polk Building, Suite 600
2521 South Clark Street
Arlington, VA 22202

Dear Chairman Principi:

On behalf of the Commonwealth of Massachusetts, we hereby submit our final documentation to the Base Realignment and Closure (BRAC) Commission in support of the case to reject the Defense Department's recommendation to close Otis Air National Guard Base. We are grateful for the opportunities that you, your fellow commissioners, and the BRAC staff have provided us to present our arguments and analysis, including your May 31st visit to the base, and in testimony July 6th in Boston at the New England regional hearing. We also appreciate very much your expressions of concern about the closure of Otis at the hearings yesterday. To ensure that the commission has ready access to all of the presentations and documentation in support of our case, and to the Otis community's expressions of support for the continued operation of the base and the 102nd Fighter Wing, please accept the complete set of documents attached.

As the Commission enters its final deliberations, we ask that you and your colleagues continue your review of our case and scrutinize the Air Force's flawed rationale for its recommendation. We believe this is a matter of great importance, as acceptance of the Defense Department's recommendation to close Otis would deny the nation its most capable Air National Guard fighter base, and deprive the Northeast of the necessary air defense protection, and would do so at a cost, not a saving, to the Treasury.

Thank you for your attention to this important matter.

Sincerely,

Edward M. Kennedy

Mitt Romney

John F. Kerry

William D. Delahunt

CRITICAL AIR: GUARDING THE NORTHEAST
THE CASE FOR OTIS ANGB
EXECUTIVE SUMMARY

On May 13, 2005, the Defense Department proposed closing Otis Air National Guard Base (ANGB). This decision would divest the Air National Guard (ANG) of its most capable fighter base and leave the entire northeastern United States, its cities, and the international air routes entering New England exposed and unprotected. The following documentation details the flaws in the Air Force's analysis and procedures through which they reached the recommendation to close Otis, and provides justification for keeping Otis functioning in support of the national defense.

The Defense Department was able to reach the recommendation to close Otis only by relying on flawed data that resulted in a dramatic miscalculation of the military value rating of the base and upon an inaccurate cost analysis that overstated savings purportedly achieved by closing the base. The Department also failed to consider properly the importance of Otis ANGB's value to the homeland defense mission, as it is the ideal location for providing fighter coverage against airborne threats for the entire Northeast.

Finally, the Department violated BRAC law in failing to consider the cost and operational impact on the Coast Guard and other Massachusetts Military Reservation tenants in formulating its recommendations. The closure of Otis may drastically hamper the Coast Guard's ability to carry out its airborne mission in the Northeast.

Military Value Miscalculated, Understated

The Defense Department miscalculated Otis ANGB's military value based on the use of flawed data used by Air Force analysts. As a result, the Department incorrectly assigned the base a fighter mission compatibility index of 42.83, ranking it 88th among all Air Force facilities for the fighter mission. The correct score, which we have documented, is 61.82, which raises the base to 24th, a score that would have resulted in the base remaining open. The Air Force ranking was inaccurate due to:

- Failure to give Otis credit for large, fully available training airspaces.
- Giving improper credit for operating hours, chaff, flare, lights out and electronic combat, hangar capacity, explosive sited parking, ramp space and munitions storage.
- Undervaluing training ranges by discounting Otis' primary user status and access to unsaturated training ranges.
- Failing to consider Otis' importance to homeland defense, including its strategic location, capacity to respond to increased NORAD threat levels, base security, and air sovereignty alert mission.

Cost Savings Inflated

The Defense Department overstated the savings the government can achieve by closing Otis by nearly half-a-billion dollars. Air Force analysts estimated that closing Otis would save $336 million over 20 years when it would actually *cost* $163 million over that period. This colossal error has three components:

- Of the estimated $33 million in purported recurring annual savings, $20 million will shift to other Massachusetts Military Reservation tenants, including the U.S. Coast Guard and the Army National Guard, at no relief to the taxpayer. This amounts to a net present value of $250 million over 20 years.
- One-time training costs associated with moving the 102nd Fighter Wing's F-15s to New Jersey, estimated by the Air Force at $4.8 million, will actually cost $65 million (net present value).
- The Air Force took credit for savings due to personnel reductions for personnel who will not be leaving the force. The Comptroller General of the U.S., David Walker, testified that this action yields no savings. Therefore, the Air Force overstated personnel savings in the amount of $184 million over 20 years (net present value).

Homeland Defense Compromised

The Air Force failed to adequately weigh the importance of Otis' homeland defense and air sovereignty mission in its recommendation to close the base. If it had properly accounted for homeland defense in the military value assessment of the bases, consulted with the adjutant generals, the governors or the Coast Guard as required by BRAC law, the Air Force would have recognized that Otis is the optimal location from which to protect New England's major population centers as well as the international air routes entering the Northeast. Otis's notable homeland defense contributions include:

- Planes from Otis were the first to react to the attacks of September 11
- Otis' 102nd Fighter Wing averages 16,000 international flights generating 442 flights of interest per month, giving it the capacity to respond effectively to national security threats
- Between May 2003 and May 2005, the Coast Guard conducted more than 520 search and rescue missions
- The Otis Coast Guard installation supports Coat Guard stations from Boston to Rhode Island and serves a region that has the most intense fishing and boating activity in the Northeast.
- The Coast Guard estimated it would need an additional 129 full-time workers for maintain full air field and base operation
- The Deputy Commandant of the Coast Guard testified before the BRAC commission on June 30th that closing the station at Otis would "increase mission response times beyond current acceptable standards."

Strong Community Support for Otis

The surrounding Cape Cod communities unanimously support the continued operation of Otis ANGB. Enclosed are copies of resolutions passed by the Massachusetts House of Representatives and Senate, all Cape Cod municipalities and counties, 15 of the surrounding townships in the region, and 6 chambers of commerce and civic organizations opposing closure of the base. Through these resolutions, the Commonwealth and these communities have united in their concern that the loss of Otis ANGB would leave the entire Northeast vulnerable to attack, jeopardize the continued operations of the Coast Guard Air Station and Army National Guard facility, and substantially impact the economy of the Cape Cod region.

In addition to these statements of support, further evidence of the strong community support for a thriving Otis ANGB is the Master Plan Report for the Massachusetts Military Reservation (MMR). This Master Plan, concluded in 1998, was prepared through the cooperative efforts of a Community Working Group comprised of Cape Cod residents, National Guard and Coast Guard personnel, state officials, members of the Cape's legislative delegation, the Cape Cod Commission, and hundreds of Cape Codders who participated through public hearings and submitted comments. The Guiding Principles adopted in 1998 represent a consensus among these groups and provide a framework for evaluating future military and civilian projects on the MMR. The stakeholders developed a close working partnership through development of the Master Plan that has provided for smooth planning and implementation of expansion, development, renewal, and cleanup activities over the past seven years.

Significant Economic Impact on Surrounding Communities

Otis ANGB has a significant economic impact on Southeastern Massachusetts, which extends throughout the Commonwealth at-large. According to an independent study by the University of Massachusetts' Donohue Institute, the 102nd Fighter Wing had a direct, indirect and induced economic impact on Massachusetts of $82.3 million in FY'04 through its payroll, contracting and other expenditures. This accounts for nearly 980 full and part-time positions employed directly by the base and an additional 742 jobs statewide. Closing the base would eliminate the 12th largest employer in Barnstable County.

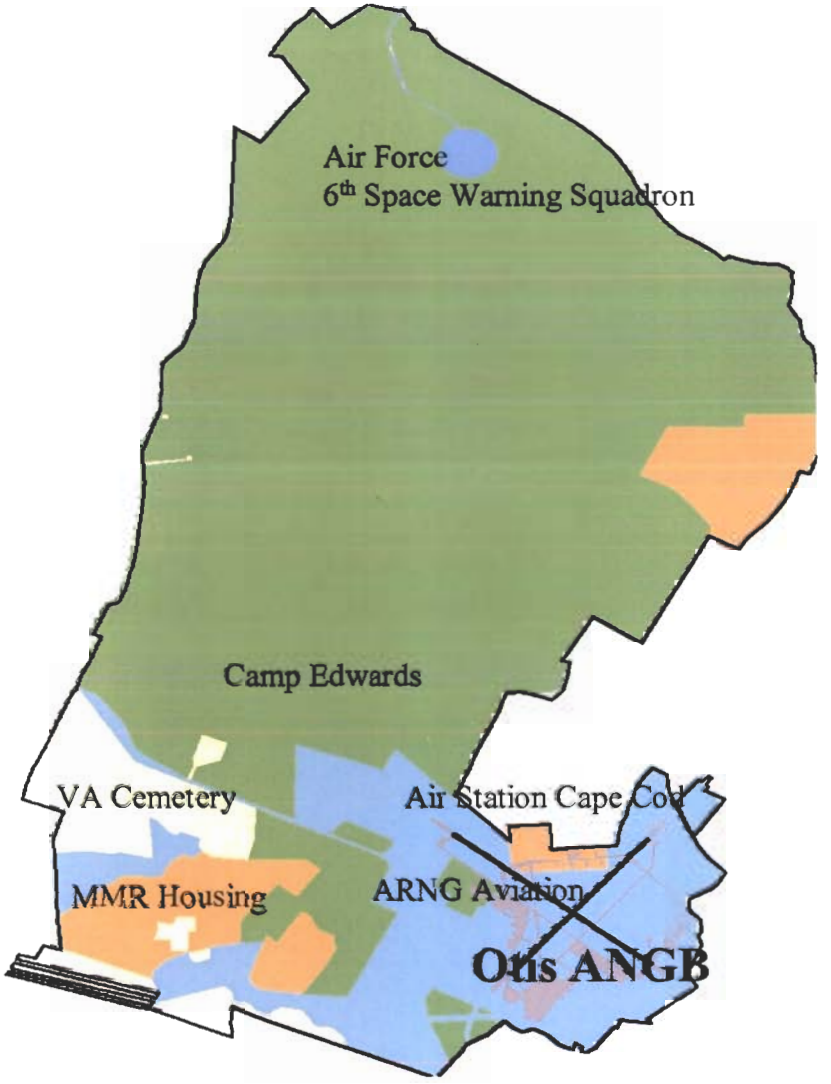
Conclusion

In summary, the commission must uphold the principles of BRAC law in determining whether to retain Otis ANGB. These include retaining those bases with the highest military value, considering the cost and functional impacts on all federal government agencies of recommended actions, and ensuring that homeland defense needs are met. Based on the substantial flaws made in determining Otis ANGB's military value and savings projected, the Defense Department's recommendation to close the base should be overturned.

Case for Otis ANGB

Otis Air National Guard Base

BRAC Commission Hearing
6 July 2005
Boston, MA



Executive Summary

- **31 May Brief – SUBSTANTIAL DEVIATIONS in Otis overall rating**

- **VALIDATE those deviations**
  - **Actual Military Value & MCI Score**
  - **Actual Cost Savings**
  - **Impact to Homeland Defense**

Agenda

Executive Summary

→ **Military Value**

Cost Savings

Homeland Defense Mission

Recommendations to the BRAC Commission

Military Value – Three Major Issues

1. ***Incorrect data was used to calculate Otis ANGB's MCI score***

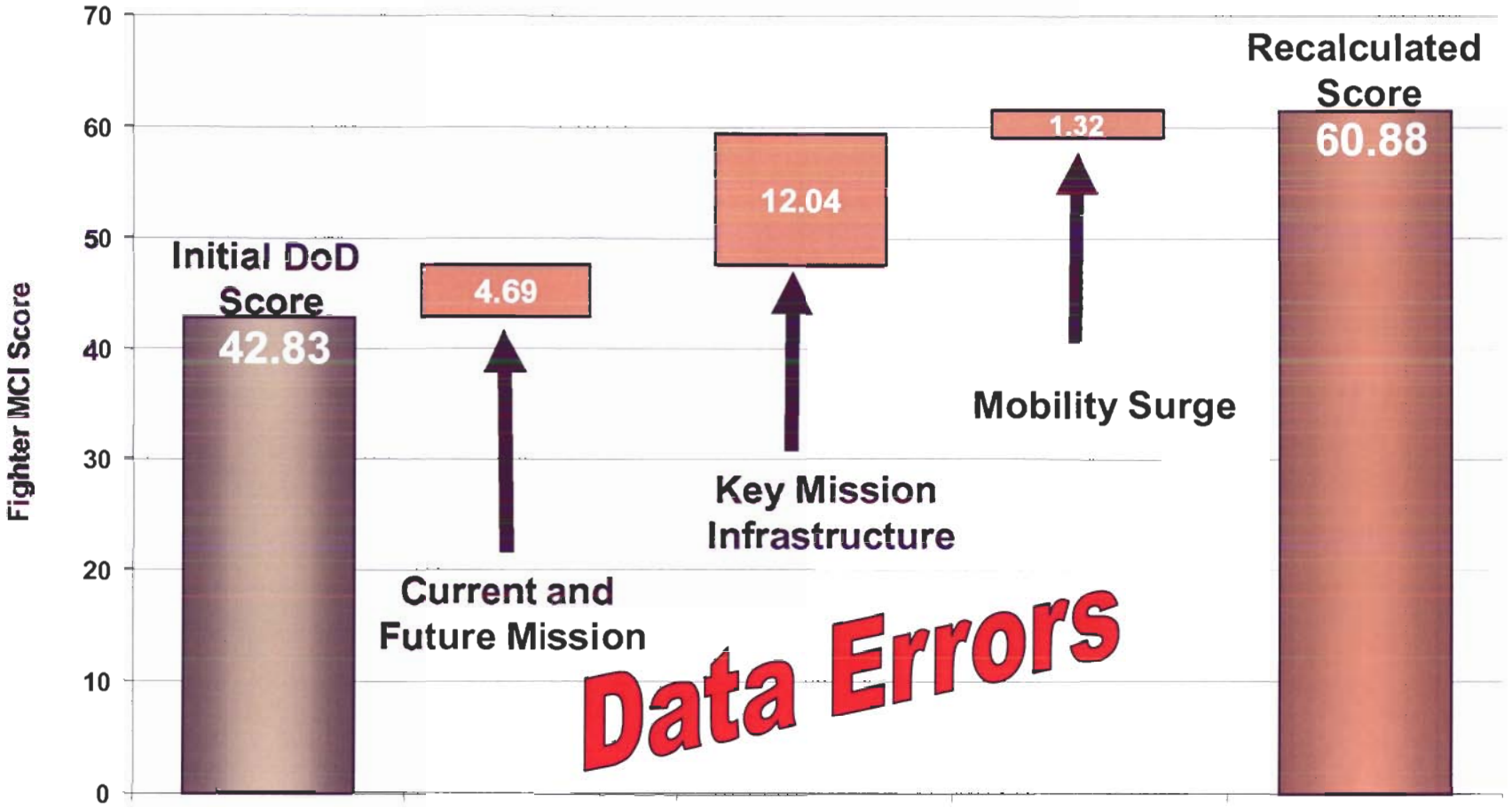
2. ***Flawed methodology was used for evaluating training ranges***

3. ***Emphasis on training ignored strategic military value and homeland defense***

Military Value – Correcting Inaccurate Data

1

Actual Otis ANGB Fighter MCI Score



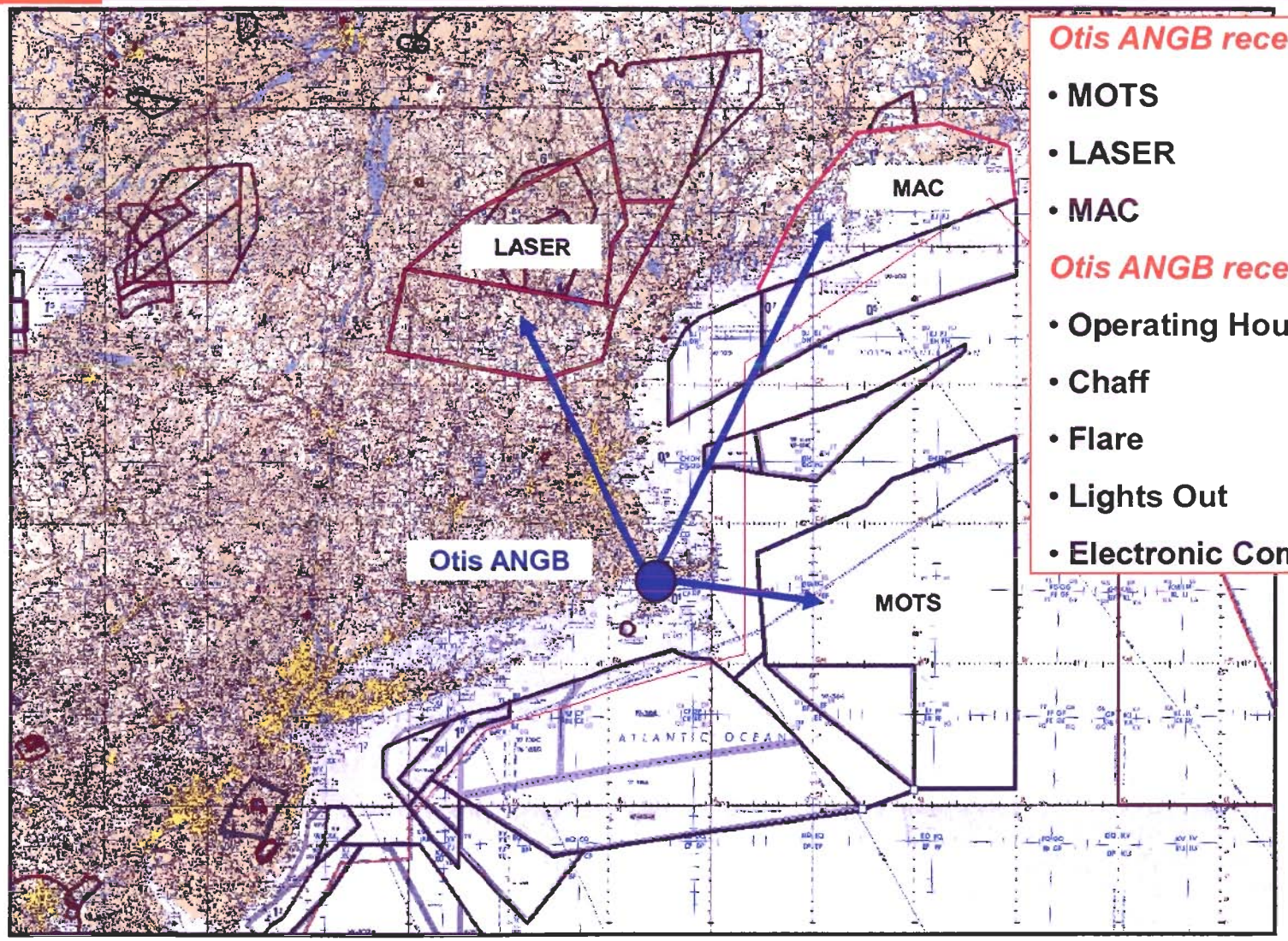
Military Value – Nine Examples of Incorrect Data

1 **Inaccurate Data**

Current and Future Mission	Key Mission Infrastructure	Mobility Surge
Proximity to Airspace Supporting Mission	Range Complex Supporting Mission	Large Scale Deployment
Auxiliary Airfields	Access to Supersonic Airspace	
Prevailing Weather Conditions	Explosive Sited Parking	
	Hangar Capability	
	Munitions Storage	

Military Value – Airspace Credit

1 Proximity to Airspace Supporting Mission



Otis ANGB received no credit for:

- **MOTS**
- **LASER**
- **MAC**

Otis ANGB received improper credit for:

- **Operating Hours**
- **Chaff**
- **Flare**
- **Lights Out**
- **Electronic Combat**

Military Value – Infrastructure Credit and Surge

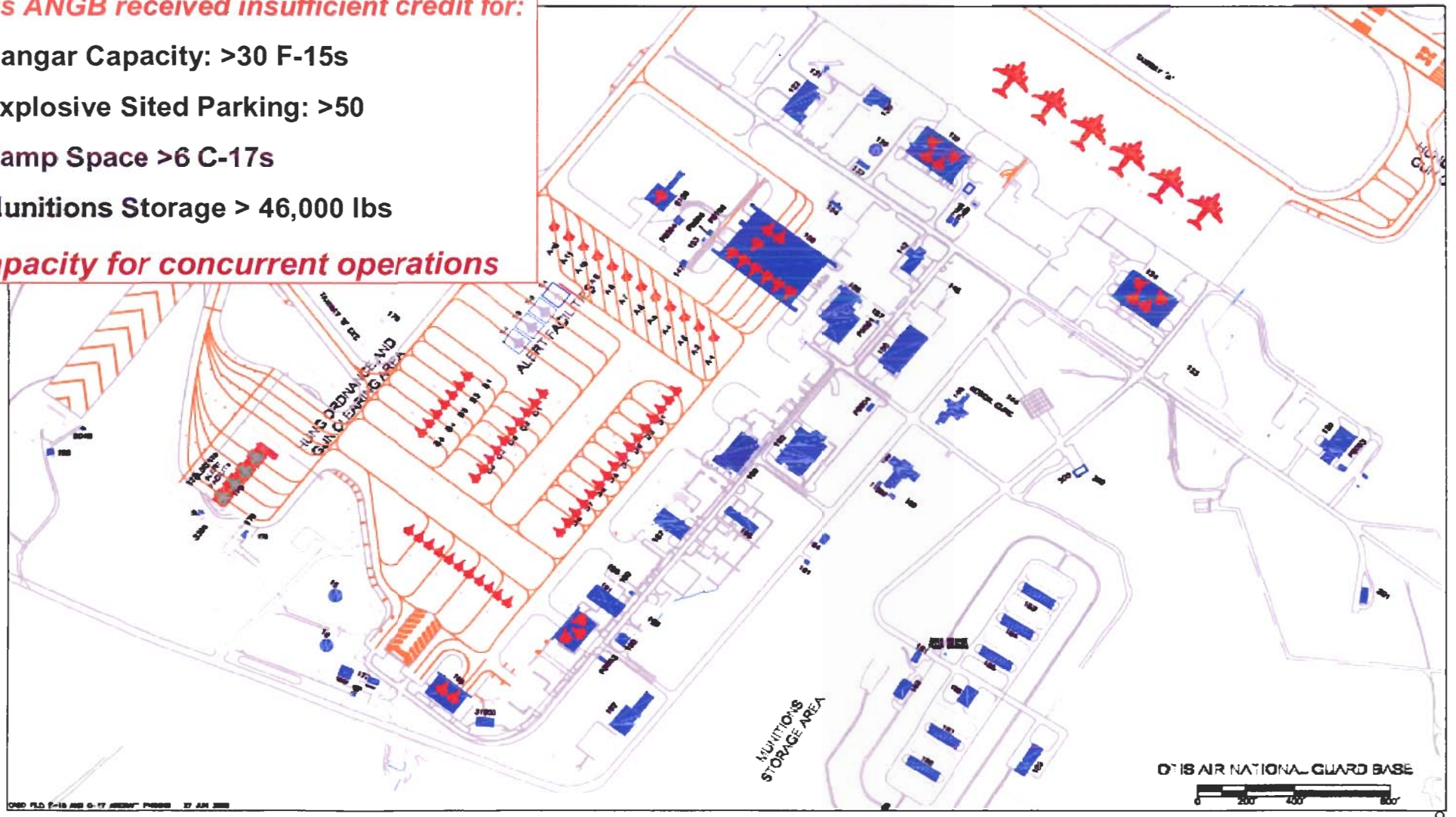
1

Infrastructure Capacity and Large Scale Deployment

Otis ANGB received insufficient credit for:

- **Hangar Capacity: >30 F-15s**
- **Explosive Sited Parking: >50**
- **Ramp Space >6 C-17s**
- **Munitions Storage > 46,000 lbs**

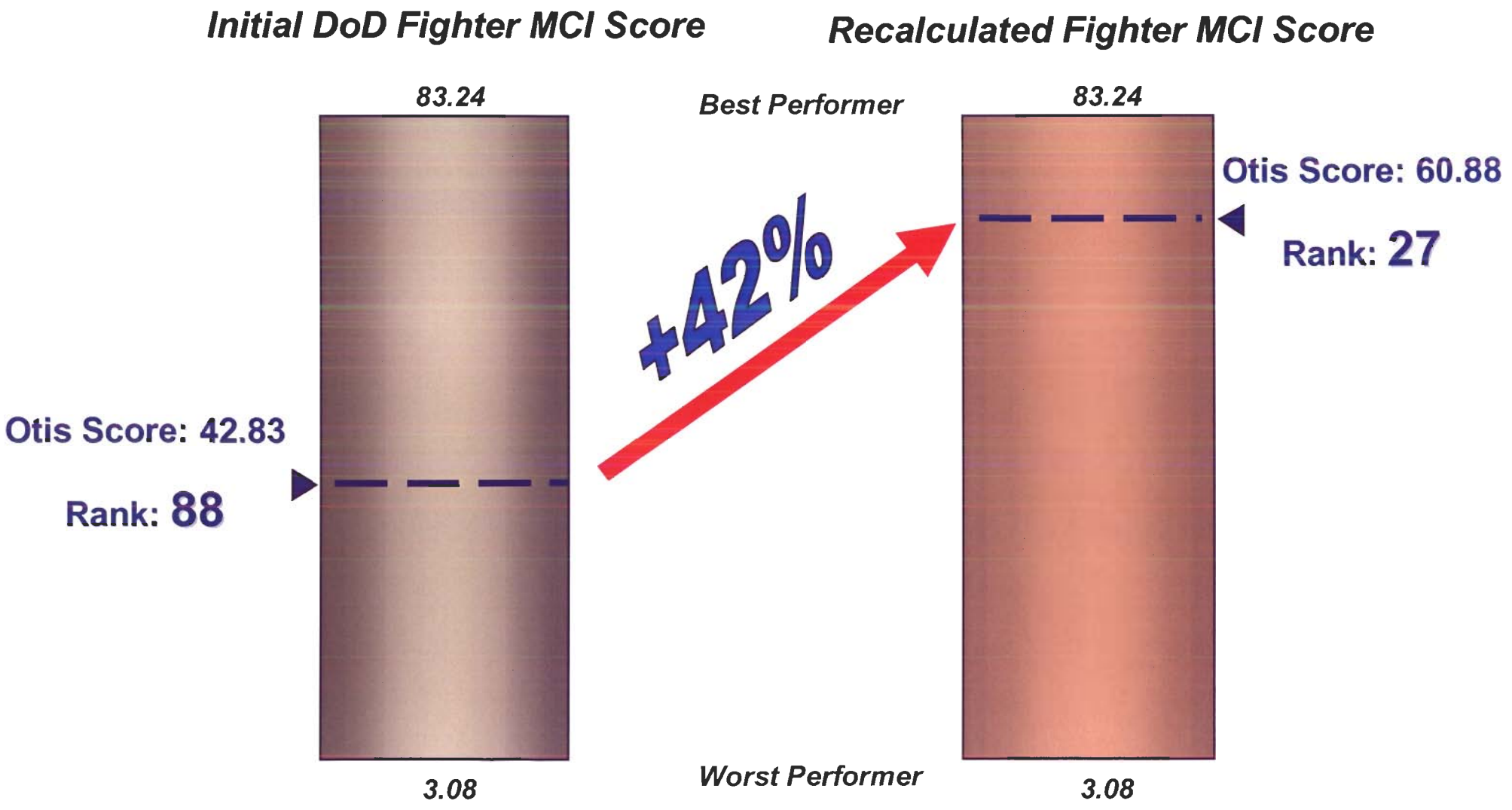
Capacity for concurrent operations



Military Value – Correct Otis Ranking is 27

1

Fighter MCI Scores and Rankings



Military Value – Range Value Misrepresented by BRAC Scoring

2

Flawed DoD Methodology

Fighter MCI misrepresented value of training ranges

1. **Size**
2. **Availability**
3. **Proximity**

1 *Bases with access to a few large, high-quality ranges scored lower than those with access to many small ranges*

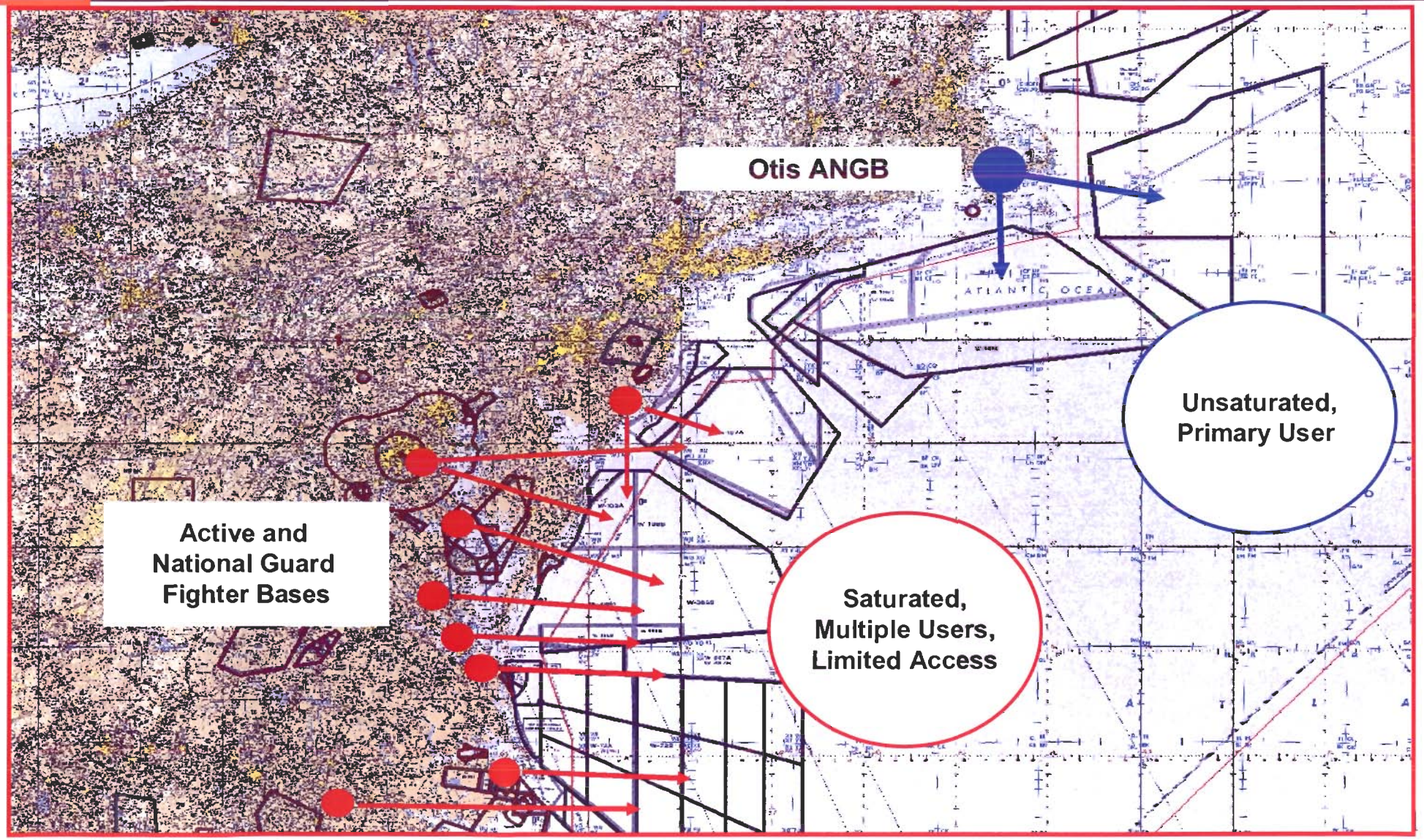
2 *Airspace saturation and accessibility was not considered in the MCI*

3 *Non-proximity attributes skewed the final proximity score*

Military Value – Flawed Methodology for Range Evaluation

2

Range Comparison



Military Value – AF Selection Criteria Ignored Homeland Defense

3 **BRAC Selection Criteria**

Criteria	Weight	Major Sub-Criteria
Current and Future Mission	46.0%	• ATC Restrictions • Prevailing Weather • Proximity to Airspace • Proximity to Low Level Routes
Condition of Infrastructure	41.5%	• Munitions Storage • Hangar Capability • Explosive-Sited Parking • Range Complex
Contingency, Mobilization, Future Forces	10.0%	• Fuel Dispensing Rate • Attainment / Emission Budget • Buildable Acres
Cost of Ops / Manpower	2.5%	• Area Cost Factor • BAH Rate • GS Locality Pay Rate

Homeland Defense Not Considered

3

Homeland Defense Deficiencies

"The strategic objectives of the 2005 National Defense Strategy include defending the US homeland from direct attack"

-Executive Summary, AF Analysis and Recommendations BRAC 2005

Factors Not Considered:

- **Current Air Sovereignty Alert Mission**
- **Strategic Location**
- **Surge Capability in response to increased NORAD Threat Levels**
- **Base Security**
- **Future and Asymmetric Threats**

Military Value – Summary

- **MCI SCORE – Corrected value - Otis ranks 27th**
- **FLAWED METHODOLOGY – Misrepresented true value of ranges**
- **HOMELAND DEFENSE – Current Mission not considered in MCI**

Agenda

Executive Summary

Military Value

→ **Cost Savings**

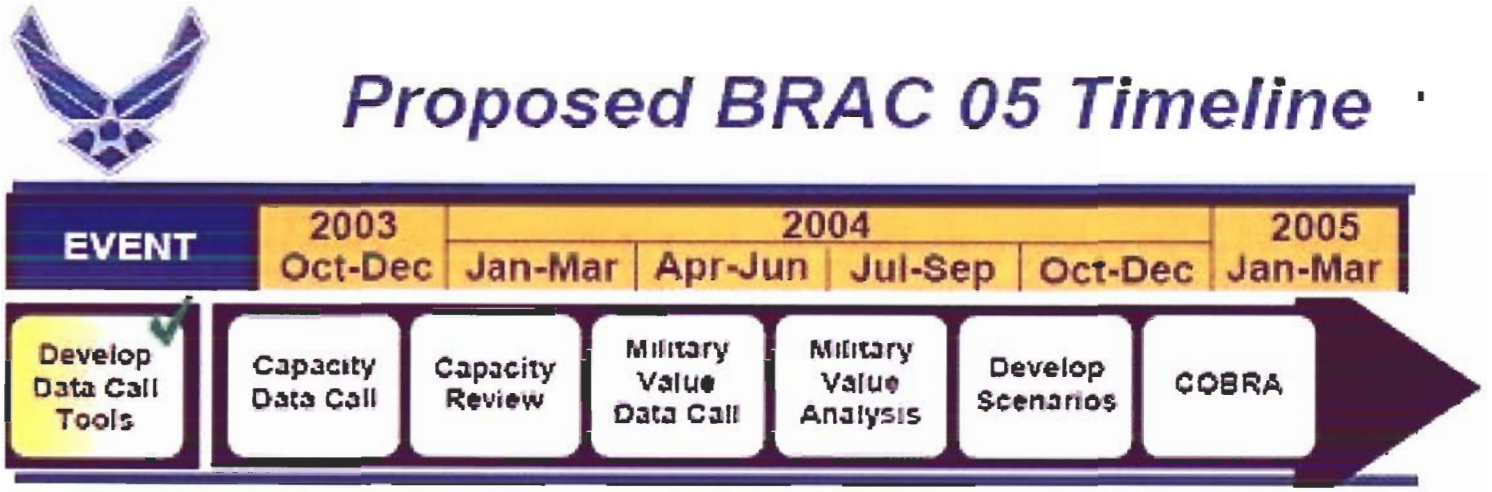
Homeland Defense

Recommendations to the BRAC Commission

Cost Savings – DoD's Analysis is Flawed

Flaws in DoD Methodology

- **The COBRA analysis was not comparative**



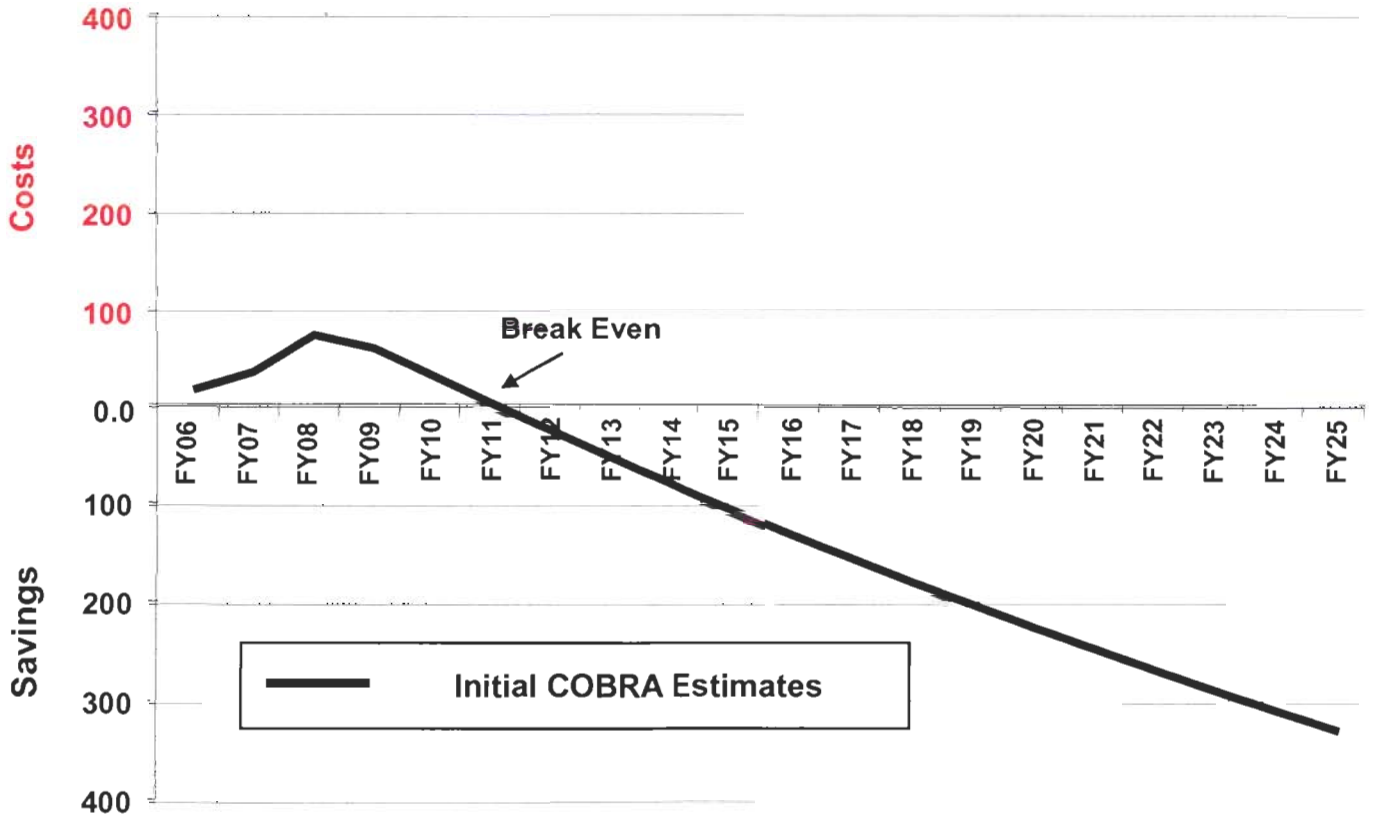
Source: BCEG Minutes

- **Money saved through personnel and overhead, not by eliminating inefficient bases**
  - **Proposed cost savings are not specific to Otis ANGB**

Cost Savings – DoD Estimate (Scenario 142c3) $336 Million Over 20 Years

COBRA Data

Initial COBRA Estimates (Cumulative $ Million)



DoD COBRA Errors:

Costs

- **One Time**
- **Recurring**

Source: DoD COBRA documents

Cost Savings – Inaccurate Data Inflates Projected Savings

- DoD failed to accurately calculate conversion costs
- COBRA model placed training costs for Atlantic City F-15 conversion at $4.8 million
- Historical data puts one-time training costs at $78M

Additional $73.2 million in one-time costs

Cost Savings – Inaccurate Data Inflates Projected Savings

Adjusted Costs

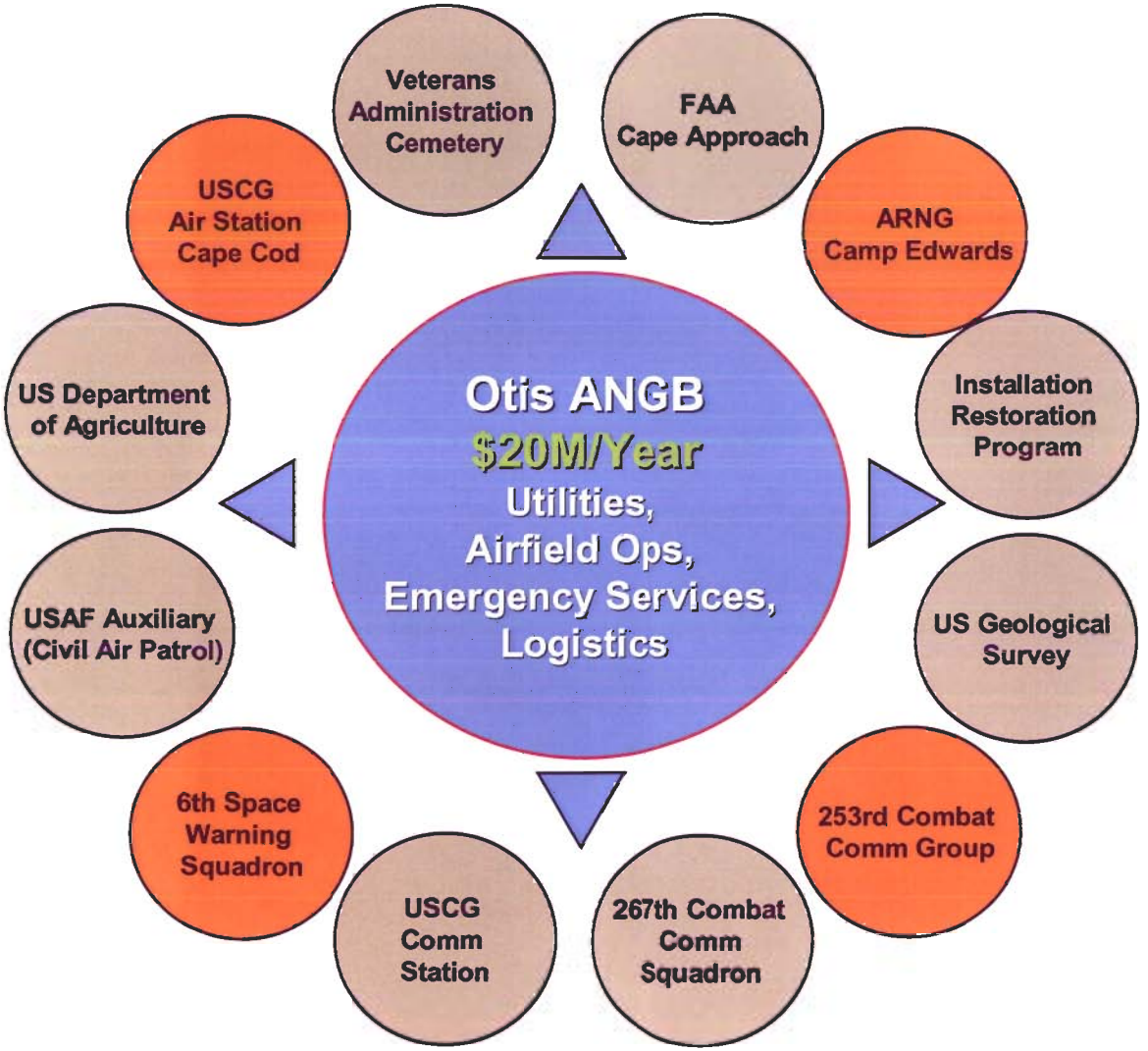
Recurring

- **DoD ignored leave behind costs for Federal MMR tenants, despite requirements under Statute 2913(e)**
- **Closing Otis ANGB will require a significant yearly leave behind cost for USCG, ARNG, and other tenants**

Additional $20 million per year in recurring costs

Cost Savings – Impact on Tenants Not Considered

Selected Otis ANGB Tenants*

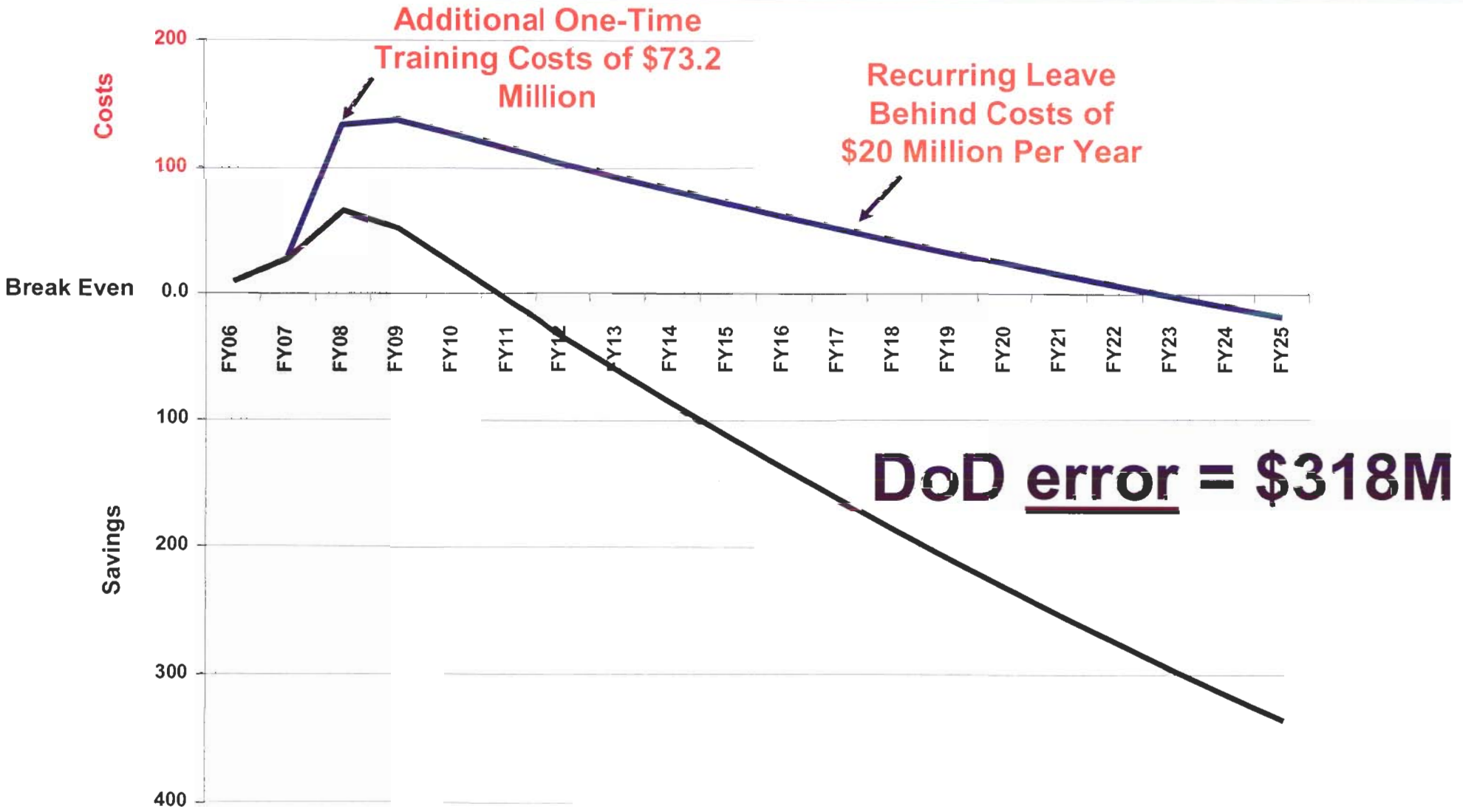


No consideration was given to the support requirements for the tenants that are left behind, violating BRAC Statute 2913(e)

*Total tenants = 28 +

Cost Savings – Recalculated Savings (Scenario 142c3) $18.1 Million Over 20 Years

BRAC Estimates versus Adjusted Cost Savings (Cumulative $Million)



Source: Analysis of DoD COBRA model and documents

Agenda

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→ **Homeland Defense**

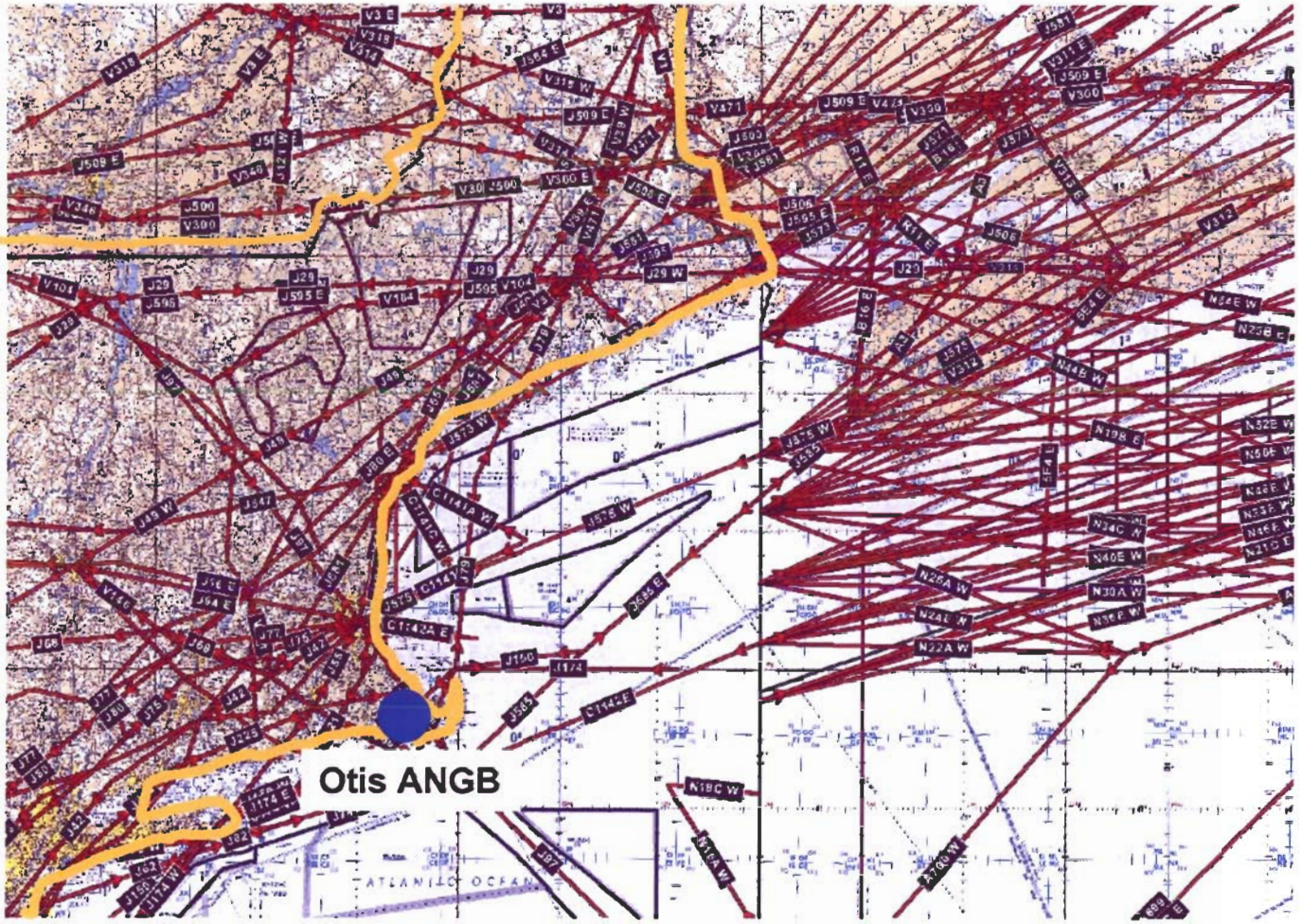
Recommendations to the BRAC Commission

"The US Government has no more important mission than protecting the homeland from future terrorist attacks"

-President George W. Bush

Homeland Defense – Strategic Location of Otis ANGB

International Air Routes



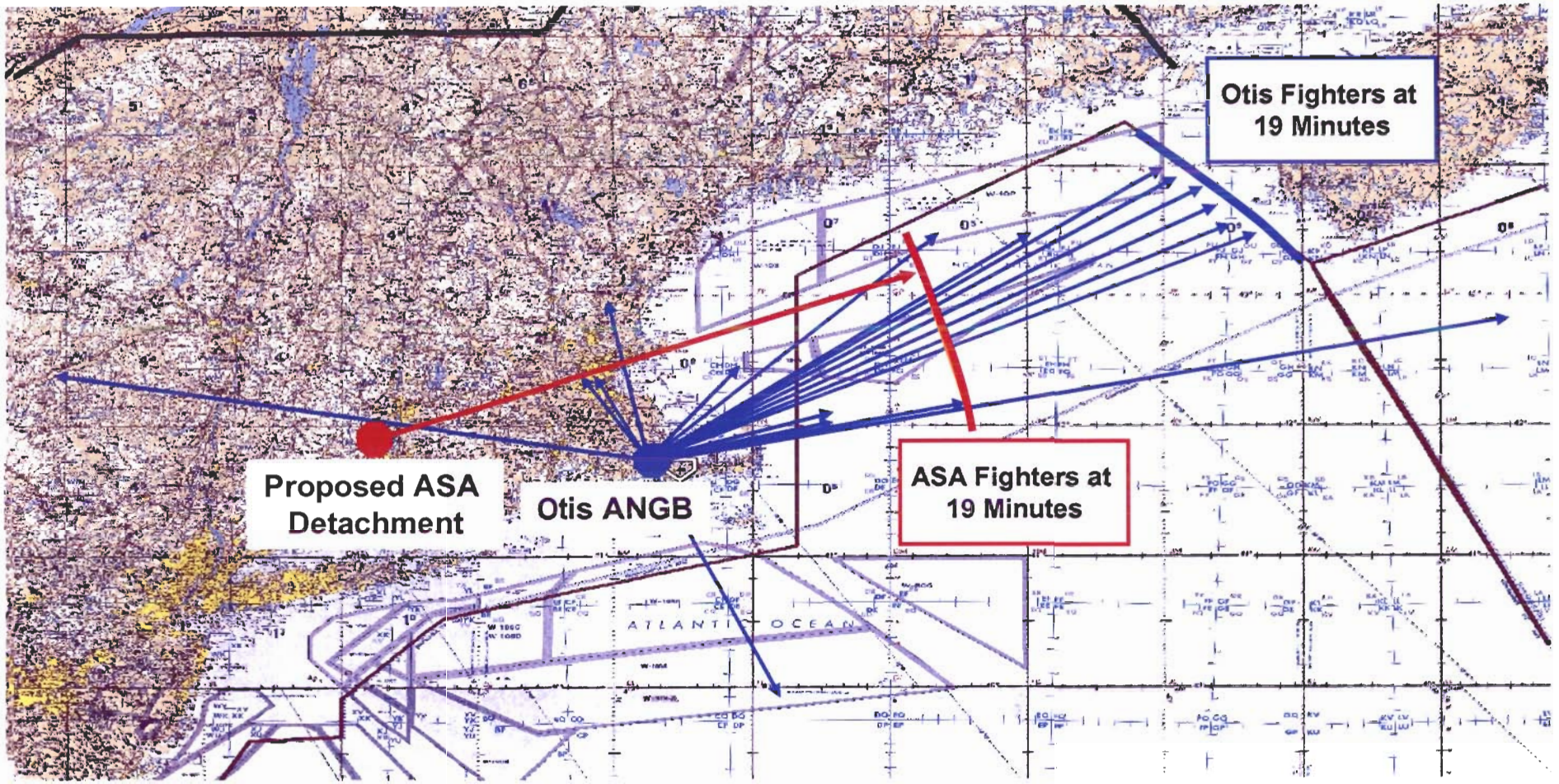
Analysis

- **Monthly Average: 16,000 International Flights**
- **Monthly Average: 442 Flights of Interest (FOI)**
- **FOI Triggers:**
  - **Point of origin**
  - **Carrier**
  - **Watch List**

LOCATION LOCATION LOCATION

Homeland Defense – Otis ANGB is Optimally Positioned

Historical Otis ANGB Intercepts (Nov. 2002 – Jun. 2005)

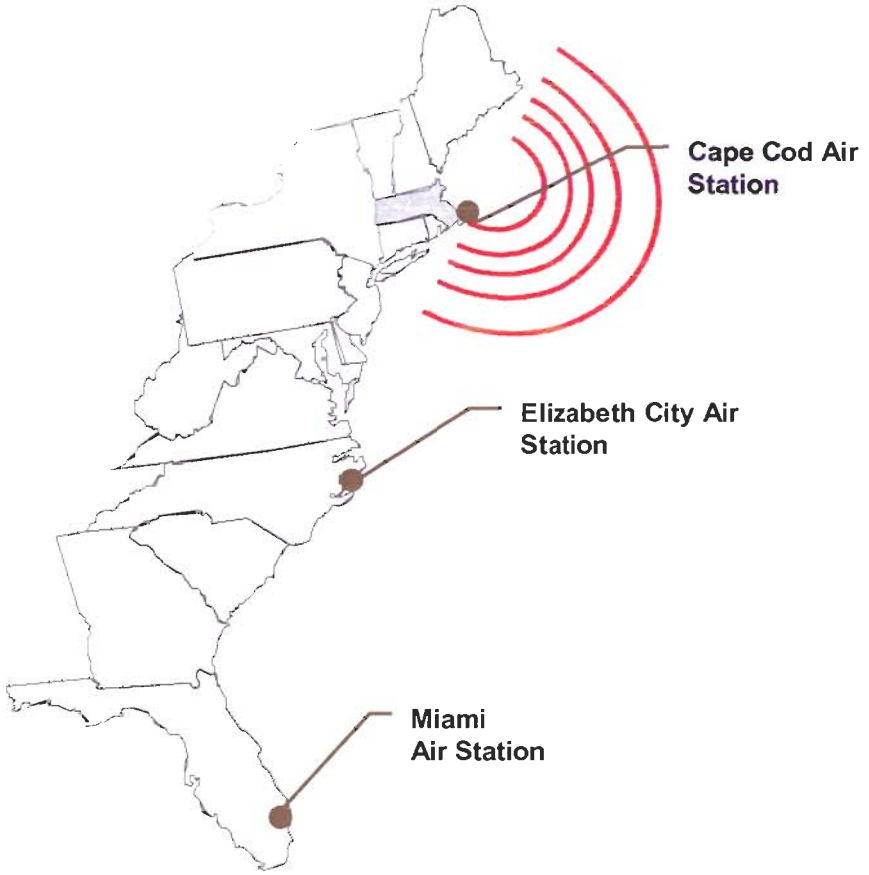


Assumptions: Max climb to 35K, .95M to 15NM feet wet, then cruise at 1.2M (approx 190NM)

LOCATION LOCATION LOCATION

Homeland Defense – USCG Homeland Defense Missions will be Impacted

Impact of BRAC Recommendations: USCG Homeland Defense Capabilities



"Plus, there will be an opportunity cost if the Coast Guard is forced to move from the central location of its busy northeast U.S. operating area. This operation will increase mission response times beyond accepted standards."

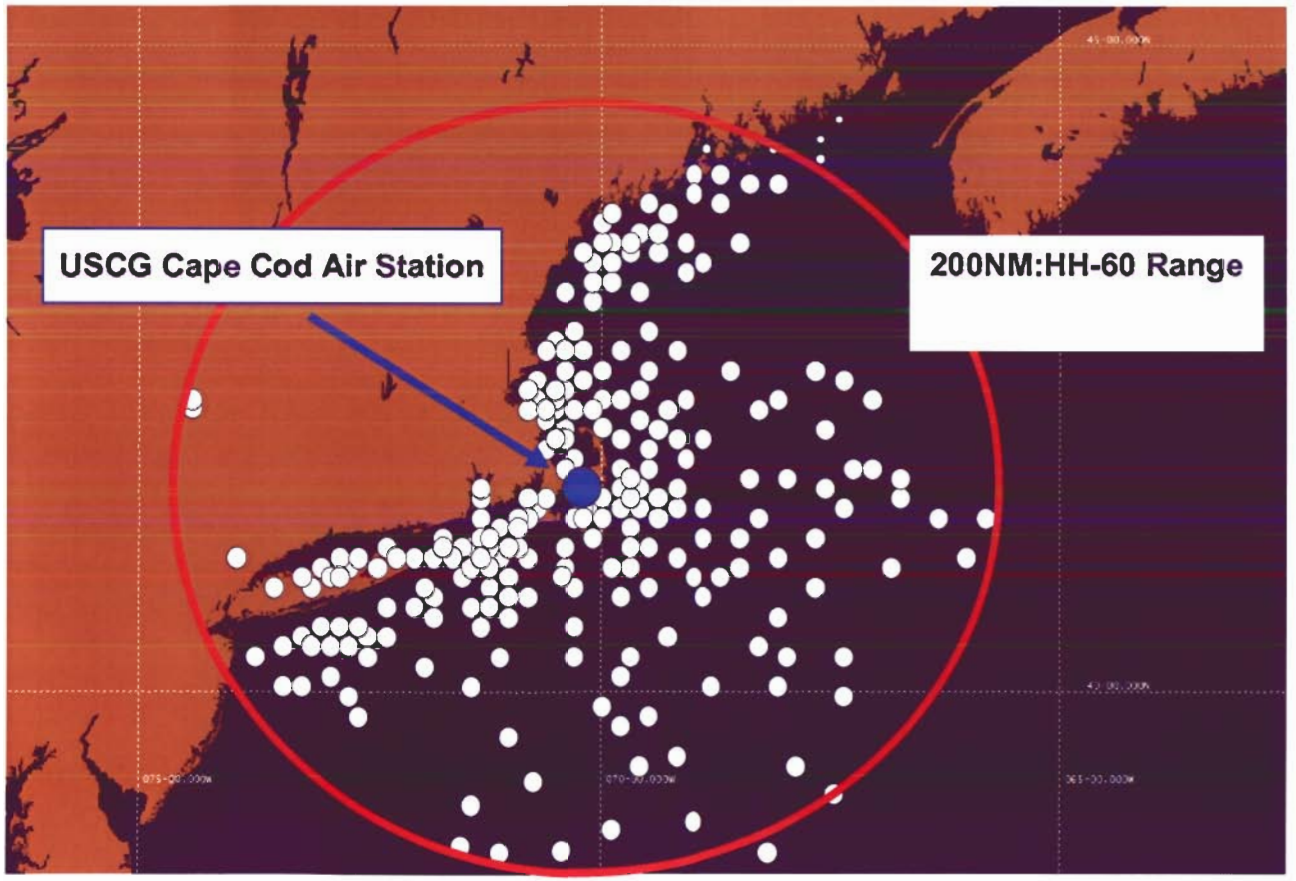
30 June 2005 – RADM Sullivan

Senior Military Advisor to the Secretary of DHS

Homeland Defense – USCG Air Station Cape Cod is Optimally Positioned

Location of US Coast Guard Search and Rescue Missions

USCG Search and Rescue Missions
May 2003 to May 2005



Key Statistics

- 520 plus SAR missions
- 213 Lives Saved in 3 years
- 53 MEDIVACs from MA Islands last year

LOCATION LOCATION LOCATION

Agenda

Executive Summary

Military Value

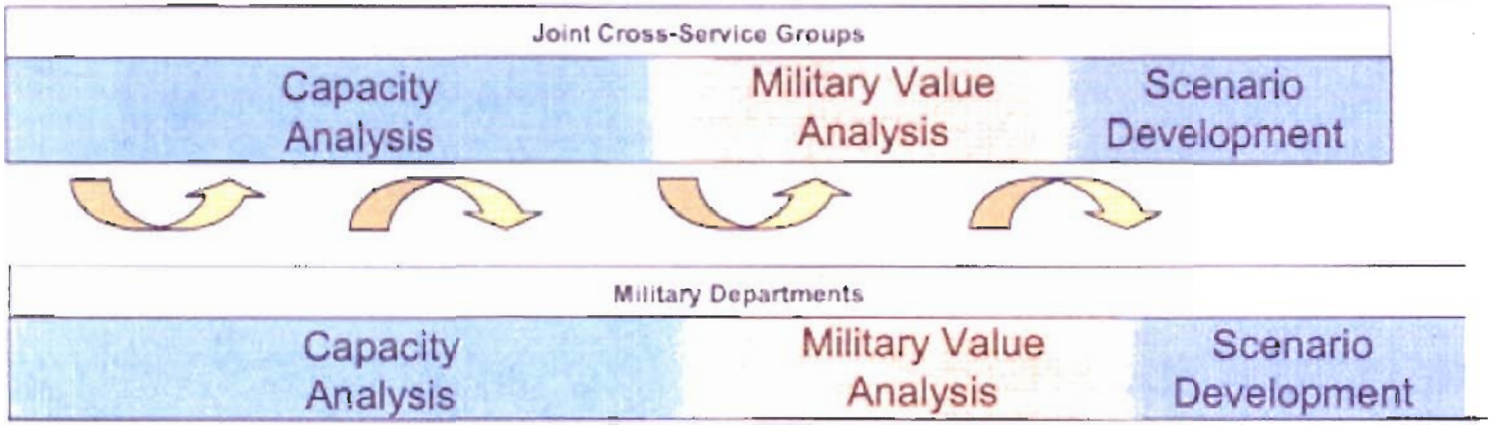
Cost Savings

Homeland Defense

→ **Recommendations to the BRAC Commission**

Air Force BRAC 2005 Process

How we got here



Source: BCEG Minutes

Conclusion

- **SUBSTANTIAL DEVIATIONS in DoD's BRAC Process**
  - **Incorrect Military Value Score - Otis ANGB ranks 27th in Fighter MCI**
  - **Incorrect COBRA data - Cost savings $18M not $336M**
  - **Ignored BRAC law – No consideration for "leave behind" costs**
  - **Homeland Defense - Ignored in MCI and under-valued overall**

- **ANALYSIS – Facts do not support DoD's recommendation**

Col Worcester
Certification Letter

Mission Compatibility Index
(MCI) Analysis

Methodology

Homeland Defense

Cost of Base Realignment
(COBRA)

F-15 Conversion
(Pilot Training Costs)

Base Operating Support
(BOS)

USCG Leave Behind Costs

DEPARTMENT OF THE AIR FORCE
102D FIGHTER WING (ACC)
MASSACHUSETTS AIR NATIONAL GUARD
OTIS AIR NATIONAL GUARD BASE MASSACHUSETTS

21 July 2005

MEMORANDUM FOR DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

FROM: 102FW/CC

SUBJECT: Information to be Included as Part of the Public Record

The following information is being submitted to further validate the presentation we gave on 6 July in Boston:

- Otis ANGB MCI Recalculations
- MCI Methodology Flaws
- Homeland Defense Analysis
- COBRA/ADDER Runs
- F-15 Conversion Costs
- Base Operating Support Costs
- USCG Leave Behind Costs

I certify that the information provided is accurate and true. I respectfully request that this data be included as part of the public record.

//signed//
PAUL G. WORCESTER, Colonel, MA ANG
Commander

Mission Compatibility Index (MCI) Analysis

OTIS REVISED MCI SCORING DATA
19 July 2005

The purpose of this document is to outline all revised Mission Capability Index (MCI) Military Value attributes and provide quantitative justification. Otis has determined at least 9 of the 23 attributes of MCI score were incorrectly calculated due to erroneous/missing data and programming errors. This results in a new score of ***61.82***. The attributes highlighted in red are the incorrect attributes. Yellow highlights indicate there are additional scoring increases that could not be accounted for due to limited/inaccurate information released by OSD. The Tab number references the question asked by OSD, Otis' analysis, and corrected response.

Mission Compatibility Index - Effective Weights (Fighter MCI)

TAB		Name	Eff. %	DoD	Recalculated
	1	**Current / Future Mission**	**46.00**		
	1	**Operating Environment**	**11.50**		
	1242	ATC Restrictions to Operations	5.98	5.98	5.98
Tab 1	1271	**Prevailing Installation Weather Conditions**	5.52	0	1.61
	2	**Geo-locational Factors**	**34.50**		
Tab 2	1245	**Proximity to Airspace Supporting Mission (ASM)**	22.08	3.83	6.55
	1246	Proximity to Low Level Routes Supporting Mission	7.25	0.54	0.54
Tab 3	1270	**Suitable Auxiliary Airfields Within 50NM**	5.18	2.59	3.89
	2	**Condition of Infrastructure**	**41.50**		
	3	**Key Mission Infrastructure**	**22.83**		
	8	Ramp Area and Serviceability	2.97	2.97	2.97
	9	Runway Dimension and Serviceability	2.28	2.28	2.28
	1207	Level of Mission Encroachment	2.28	1.75	1.75
Tab 4	1221	**Hangar Capability - Small Aircraft**	3.88	2.43	3.88
Tab 5	1232	**Sufficient Explosives-sited Parking**	3.65	1.21	3.65
Tab 6	1233	**Sufficient Munitions Storage**	4.79	0	4.79
	1235	Installation Pavements Quality	2.97	2.97	2.97
	4	**Operating Areas**	**18.68**		
Tab 7	1203	**Access to Adequate Supersonic Airspace**	6.72	2.69	6.05
Tab 8	1266	**Range Complex (RC) Supports Mission**	11.95	6.95	6.95
	3	**Contingency, Mobilization, Future Forces**	**10.00**		
	5	**Mobility/Surge**	**4.40**		
	1214	Fuel Dispensing Rate to Support Mobility and Surge	2.64	0.71	0.71
Tab 9	1241	**Ability to Support Large-Scale Mobility Deploymer**	1.76	0.44	1.76
	6	**Growth Potential**	**5.60**		
	213	Attainment / Emission Budget Growth Allowance	1.68	1.01	1.01
	1205.1	Buildable Acres for Industrial Operations Growth	1.96	1.96	1.96
	1205.2	Buildable Acres for Air Operations Growth	1.96	1.47	1.47
	4	**Cost of Ops / Manpower**	**2.50**		
	7	**Cost Factors**	**2.50**		
	1250	Area Cost Factor	1.25	0.59	0.59
	1269	Utilities cost rating (U3C)	0.13	0.04	0.04
	1402	BAH Rate	0.88	0.18	0.18
	1403	GS Locality Pay Rate	0.25	0.25	0.25
		TOTAL	**100.00**	**42.83**	**61.82**

Scores were recalculated using the algorithms described in *Department of the Air Force Analysis and Recommendations BRAC 2005 (Volume V, Part 2 of 2)*. Seven of nine attributes were accurately recalculated using missing data. In one case, attribute/equation 1266 (Tab 8), the algorithm described did not replicate the posted scores and therefore could not be accurately used to assess our true value using missing data. In another case, attribute 1203 (Tab 7), the listed score is incorrect when using the posted algorithm and actual OSD data. Otis' recalculated MCI score was **61.82** without any additional credit for attribute 1266. This MCI ranks Otis #24 out of 154 bases for Fighter Missions (see scores at right).

Microsoft Excel was used to recalculate six of the nine attribute scores. Formula 1245 was replicated using a combination of ArcGIS and Excel. All files are included on the CD.

Each tab will show the question and formula provided by OSD, followed by the recalculated score. The tab will also include auditable background information used for the recalculation.

Data used in scoring questions 1271, 1245, 1270, 1203, and 1266 was provided at the HAF level.

FIGHTER MCI (EXCEPT A-10S)

RANK	BASE	OVERALL MCI SCORE
1	Seymour Johnson AFB	83.24
2	Langley AFB	82.84
3	Eglin AFB	81.40
4	Hurlburt Field	77.43
5	MacDill AFB	75.60
6	Tyndall AFB	73.63
7	Shaw AFB	72.20
8	Edwards AFB	71.92
9	Moody AFB	70.80
10	Holloman AFB	69.82
11	Eielson AFB	69.09
12	Luke AFB	69.06
13	Nellis AFB	68.73
14	Hill AFB	68.02
15	Dover AFB	66.69
16	Kirtland AFB	66.44
17	Pope AFB	65.86
18	Patrick AFB	64.96
19	Charleston AFB	64.94
20	March ARB	64.84
21	Andrews AFB	64.83
22	Davis-Monthan AFB	63.83
23	Mountain Home AFB	63.01
24	Otis AGB	61.82
25	Jacksonville IAP AGS	61.80
26	Barksdale A FB	61.49
27	Altus AFB	61.43
28	Little Rock AFB	60.7
29	McChord AFB	60.
30	Fairchild AFB	60.3
31	Maxwell AFB	59.61
32	Homestead ARS	59.17
33	Robins AFB	59.13
34	Indian Springs AFS	59.11
35	Dyess AFB	58.96
36	Tinker AFB	58.47
37	Elmendorf AFB	58.35
38	Whiteman AFB	58.18
39	Beale AFB	58.10
40	Ellsworth AFB	58.06
41	Savannah IAP AGS	57.80
42	McGuire AFB	57.02
43	Minot AFB	56.64
44	McConnell AFB	56.47
45	Travis AFB	56.42
46	Sheppard AFB	56.26
47	Grand Forks AFB	55.88
48	Lackland AFB	55.79
49	McEntire AGS	55.74
50	Richmond IAP AGS	55.34

Tab 1

Mission	Fighter
Criterion	Current / Future Mission
Attribute	Operating Environment
Formula #	1271
Label	Prevailing Installation Weather Conditions
Effective %	5.52
Question	Check the average number of days annually the prevailing weather is better than 3000'/3 Nautical Miles (NM). If installation has no runway or no active runway, or no serviceable, suitable runway then score 0 pts. See section 1.9 "Shared" for details. If the average number of days >= 300, get 100 points. Otherwise, if the average number of days <= 250, get 0 points. Otherwise, pro-rate the average number of days between 250 and 300 on a 0 to 100 scale. **Example:** The average number of days annually where the prevailing weather is better than 3000'/3 NM is 275. 275 is halfway between 250 and 300, for a score of 50.
Source	AFCCC Climatological tables

Data for this question came from HAF (AFWA) according to *USAF Questionaire Definitions*

QUESTION TITLE

1271 Air Operations - Prevailing Weather

TEXT

For installations with an active runway, how many days each year, averaged over 30 years, was the prevailing weather better than 3000?/3NM?

AMPLIFICATION

(HAF: AF/XO to list bases of interest; AFWA to answer) Record each installation entry in days/year. Answer should be weather data for the installation averaged over 30 years (CY1973 - 2003).

Using data attained from AFCCC, Asheville NC, historical data over the past 30 years results in 72.5% of the days (or 264.6 days a year) meeting the criteria. This equates to an additional 1.6 more points in the MCI. The data sheets are on the next page.

GLOBAL CLIMATOLOGY BRANCH

PERCENTAGE FREQUENCY OF OCCURRENCE OF CEILING VERSUS VISIBILITY

AFCCC, ASHEVILLE NC FROM HOURLY OBSERVATIONS

STATION NUMBER: 725060 STATION NAME: Otis ANGB MA PERIOD OF RECORD: JAN 1973 - NOV 2004

UTC TO LST: -5 MONTH: ANN HOURS: ALL

CEILING IN FEET	VISIBILITY IN MILES															
	GE 7	GE 6	GE 5	GE 4	GE 3	GE 2 1/2	GE 2	GE 1 ½	GE 1 1/4	GE 1	GE 3/4	GE 5/8	GE 1/2	GE 3/8	GE 1/4	GE 0
NO CEIL	42.9	43.7	44.5	45.1	45.6	45.7	46.0	46.0	46.1	46.1	46.1	46.1	46.2	46.2	46.2	46.2
GE 20000	49.8	50.8	51.7	52.4	53.1	53.2	53.4	53.5	53.6	53.6	53.7	53.7	53.7	53.7	53.7	53.8
GE 18000	50.0	51.0	51.9	52.6	53.3	53.4	53.7	53.8	53.8	53.9	53.9	53.9	53.9	53.9	54.0	54.0
GE 16000	50.0	51.1	52.0	52.7	53.4	53.5	53.7	53.8	53.9	53.9	53.9	53.9	54.0	54.0	54.0	54.1
GE 14000	51.3	52.4	53.3	54.1	54.8	54.9	55.2	55.3	55.3	55.3	55.4	55.4	55.4	55.4	55.5	55.5
GE 12000	52.9	54.0	55.0	55.7	56.5	56.6	56.9	57.0	57.0	57.1	57.1	57.1	57.2	57.2	57.2	57.2
GE 10000	55.4	56.6	57.7	58.6	59.4	59.5	59.8	59.9	60.0	60.0	60.1	60.1	60.1	60.1	60.1	60.2
GE 9000	56.0	57.2	58.3	59.1	59.9	60.1	60.4	60.5	60.6	60.6	60.6	60.7	60.7	60.7	60.7	60.8
GE 8000	58.1	59.3	60.5	61.4	62.3	62.4	62.7	62.9	62.9	63.0	63.0	63.0	63.1	63.1	63.1	63.1
GE 7000	59.1	60.4	61.6	62.5	63.4	63.5	63.9	64.0	64.0	64.1	64.1	64.1	64 2	64 2	64.2	64.3
GE 6000	60.3	61.6	62.8	63.7	64.6	64.8	65.2	65.3	65.3	65.4	65.4	65.4	65.5	65.5	65.5	65.6
GE 5000	62.0	63.4	64.7	65.7	66.6	66.8	67.1	67.3	67.3	67.4	67.5	67.5	67.5	67.5	67.5	67.6
GE 4500	62.9	64.4	65.7	66.7	67.6	67.8	68.2	68.3	68.4	68.4	68.5	68.5	68.5	68.5	68.6	68.6
GE 4000	64.3	65.8	67.2	68.2	69.2	69.4	69.8	70.0	70.0	70.1	70.1	70.1	70.1	70.2	70.2	70.2
GE 3500	65.4	66.9	68.4	69.4	70.4	70.6	71.0	71.2	71.2	71.3	71.3	71.3	71.4	71.4	71.4	71.4
GE 3000	67.3	68.8	70.4	71.5	72.5	72.8	73.2	73.4	73.4	73.5	73.5	73.5	73.6	73.6	73.6	73.7
GE 2500	68.7	70.3	71.9	73.1	74.2	74.4	74.9	75.1	75.1	75.2	75.2	75.2	75.3	75.3	75.3	75.4
GE 2000	70.3	72.0	73.7	75.0	76.2	76.4	76.9	77.1	77.2	77.3	77.3	77.3	77.4	77.4	77.4	77.5
GE 1800	70.6	72.4	74.1	75.4	76.6	76.8	77.3	77.6	77.6	77.7	77.7	77.7	77.8	77.8	77.8	77.9
GE 1500	71.7	73.5	75.4	76.7	78.0	78.3	78.8	79.0	79.1	79.2	79.3	79.3	79.3	79.3	79.3	79.4
GE 1200	72.8	74.7	76.7	78.1	79.5	79.9	80.4	80.7	80.8	80.9	80.9	80.9	81.0	81.0	81.0	81.1

264.6 days
GE 3000/3

Tab 2

Mission	Fighter
Criterion	Current / Future Mission
Attribute	Geo-locational Factors
Formula #	1245
Label	Proximity to Airspace Supporting Mission (ASM)
Effective %	22.08
Question	If installation has no runway or no active runway, or no serviceable, suitable runway then score 0 pts. See section 1.9 "Shared" for details. All airspace over 150 Nautical Miles (NM) away will be ignored. See OSD # 1245, column 2. (N/A means more than 250 NM.) Data is in OSD #s 1266, 1245 and 1274 must be matched via column 1 in each question. Calculate each of the subcategories scores listed below, and weight as listed. 15% Airspace Volume (AV) 15% Operating Hours (OH) 10% Scoreable Range (SR) 11.25% Air to Ground Weapons Delivery (AGWD) .75% Low Angle Strafe (LA) 3% Live Ordnance (LO) 5% IMC Weapon Release (IW) 5% Electronic Combat (EC) 10% Laser Use Auth. (LU) 10% Lights Out Capable (LC) 5% Flare Auth. (FA) 5% Chaff Auth. (CA) Each of the subcategories use the following general pattern for calculating them: Check the corresponding subcategory in formula #1266. If it would get 0 points for that subcategory, get 0 points here also. Otherwise, Compute a raw total for the subcategory for the base according to this formula: For each airspace: If the distance to the airspace is > 150 miles, get 0 points. Otherwise, if the distance to the airspace = 150 miles, get 10 points. Otherwise, if the distance to the airspace = 50 miles, get 100 points. Otherwise, pro-rate the distance to the airspace from 50 miles to 150 miles on a 100 to 10 point scale. Once you have a base raw subcategory total, find the highest, and the lowest, non-zero raw total for the subcategory across all bases. If the raw total = 0, that subcategory score = 0.

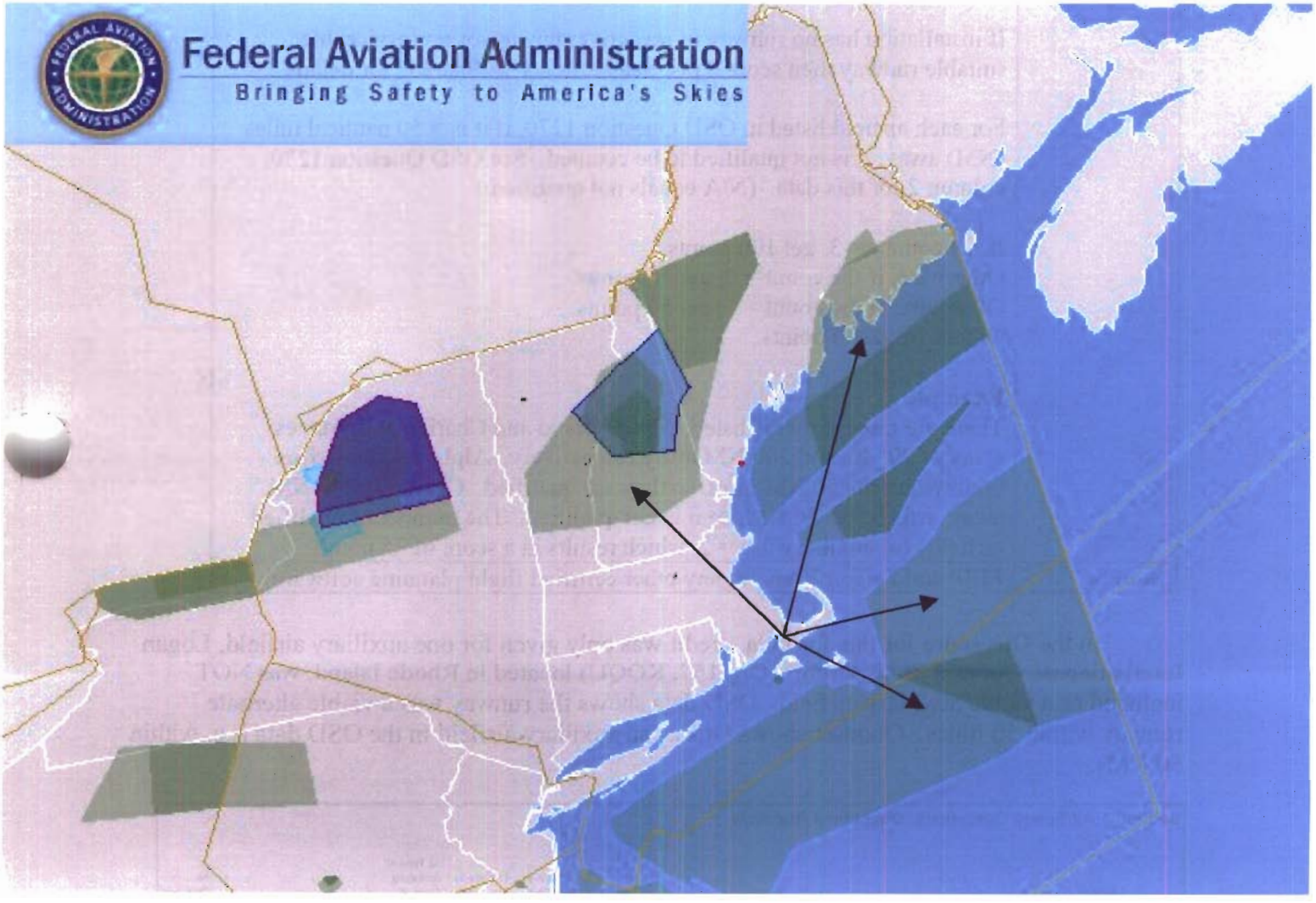
	Else, if the raw total = the highest raw total, the subcategory score = 100. Else, if the raw total = the lowest, non-zero raw total, the subcategory score = 10. Else, pro-rate the raw total between the lowest non-zero raw total and the highest raw total on a 10 to 100 scale. Once each score for each subcategory is known, multiply them by their respective weighting percentage and total the results for the overall score. The overall mechanism is very similar to that of formula #1266.
Source	FLIP AP-1A: IFR Supp: Falcon View or other certified flight planning software

The range data used in the calculations did not include 10 key airspaces within 150NM of Otis; MOT A,B,C,D MAC 12,13, and LASER N,S,E,W. In addition, numerous attributes were listed incorrectly in the OSD datafiles. The following spreadsheet highlights the missing and erroneous data, which was corrected and used to rescore the question.

Section 2 Army Operations, Question 1274 Airspace Attributes - Ranges (2 of 2)

							From Question 1266						From Question	
Org	1 Airspace Designator (Text)	2 Airspace Volume: at least 2,100NM cubed; altitude block >=20,000' (Yes/No)	3 Flare (Yes/No)	4 Chaff (Yes/No)	5 Live Ordnance (Yes/No)	2 Operating Hours (#)	3 Scoreable ranges/complexes/target array (Yes/No)	4 Air to Ground Weapons Delivery (Yes/No)	5 Low Angle Strafe Authorized (Yes/No)	6 IMC weapons release (Yes/No)	7 Electronic Combat (Yes/No)	8 Laser Use Authorized (Yes/No)	9 Lights-Out Capable (Yes/No)	2 Distance to Airspace/Route (NM)
27	R4101	No	N/A	N/A	No	12	No	No	No	No	N/A	No	N/A	2
27	R4105A	No	N/A	N/A	No	16	No	No	No	No	No	No	No	24
27	R4105B	No	N/A	N/A	No	16	No	No	No	No	No	No	No	24
27	W105A	Yes	Yes	Yes	No	24	No	No	No	No	No	No	Yes	33
27	W104A	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	50
27	W104B	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	62
27	W506	Yes	Yes	Yes	No	24	No	No	No	No	No	No	Yes	62
27	W103	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	64
27	R4102A	No	N/A	N/A	No	14	No	No	No	No	N/A	No	N/A	70
27	R4102B	No	N/A	N/A	No	14	No	No	No	No	N/A	No	N/A	70
27	W106B	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	87
27	W102H	Yes	Yes	Yes	No	24	No	No	No	No	No	No	N/A	97
27	W102L	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	97
27	W106A	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	113
27	W105B	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	123
27	YANKEE 1 MOA	No	Yes	No	No	12	No	No	No	No	No	No	Yes	126
27	YANKEE 2 MOA	No	Yes	No	No	12	No	No	No	No	No	No	Yes	126
27	W106C	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	130
27	W106D	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	143
27	LASER NORTH ATCAA	Yes	Yes	No	No	14	No	No	No	No	No	No	Yes	123
27	LASER SOUTH ATCAA	Yes	Yes	No	No	14	No	No	No	No	No	No	Yes	97
27	LASER EAST ATCAA	Yes	Yes	No	No	14	No	No	No	No	No	No	Yes	119
27	LASER WEST ATCAA	Yes	Yes	No	No	14	No	No	No	No	No	No	Yes	141
27	MOT A ATCAA	Yes	Yes	Yes	No	24	No	No	No	No	Yes	No	Yes	46
27	MOT B ATCAA	Yes	Yes	Yes	No	24	No	No	No	No	Yes	No	Yes	
27	MOT C ATCAA	Yes	Yes	Yes	No	24	No	No	No	No	Yes	No	Yes	
27	MOT D ATCAA	Yes	Yes	Yes	No	24	No	No	No	No	Yes	No	Yes	
27	MAC 12 ATCAA	Yes	Yes	Yes	No	14	No	No	No	No	No	No	Yes	136
27	MAC 13 ATCAA	Yes	Yes	Yes	No	14	No	No	No	No	No	No	Yes	130

When these errors/omissions are factored into the algorithm, Otis earns an additional 2.72 points for these airspaces. It is important to note that W105 was scored only as 2 separate airspaces. Following the pattern of other similar type airspaces, it should have actually been scored as SEVEN separate airspaces (W105A through G). Doing such would have GREATLY increased the score based on the methodology used in the algorithms. This is explained in detail in our MCI Methodology point paper. The following map depicts the missing airspaces. The FAA Memorandum of Agreement is included immediately after.



Tab 3

Mission	Fighter
Criterion	Current / Future Mission
Attribute	Geo-locational Factors
Formula #	1270
Label	Suitable Auxiliary Airfields Within 50NM
Effective %	5.18
Question	Identify runways within 50 NM of the installation that are 8.000ft x 150ft or greater and are suitable for use as an auxiliary runway. If installation has no runway or no active runway, or no serviceable, suitable runway then score 0 pts. See section 1.9 "Shared" for details. For each airfield listed in OSD Question 1270, if it is > 50 nautical miles (NM) away, it is not qualified to be counted. See OSD Question 1270, column 2 for this data. (N/A equals not qualified.) If the count >= 3, get 100 points. Otherwise, if the count = 2, get 75 points. Otherwise, if the count = 1, get 50 points. Otherwise, get 0 points. **Example**: There are three airfields listed, Alpha, Bravo and Charlie, at distances away of 20, 40, and 200 NM away respectively. Alpha and Bravo are both within the 50 NM limit, so they are qualified. Charlie is 200 NM away, which is > 50 NM, so it is not qualified. The number of qualified airfields for auxiliary use = 2, which results in a score of 75 points.
Source	FLIP and Falcon View (or any other certified flight planning software)

In the Otis score for this formula, credit was only given for one auxiliary airfield, Logan International. Quonset State Airport (Org 157, KOQU) located in Rhode Island, was NOT included as a viable auxiliary airfield. OSD data shows the runway was a viable alternate runway within 50 miles. Quonset shows Otis as an auxiliary airfield in the OSD data (i.e. within 50 NM).

Section 1 Air/Space Operations, Question 9 Runways

Org	1 Airfield Identifier (ICAO 4 character identifier) (Text)	2 Runway Designator (First End)) ()	3 Runway Designator (Second End) ()	4 PCN (1) ()	5 PCI (2) ()	6 Date of Evaluation (3) (dd mmm yyyy)	7 Length (Ft)	8 Width (Ft)	9 Type of Arresting Gear, if available (First End, First Set) ()	10 Type of Arresting Gear, if available (First End, Second Set) ()	11 Type of Arresting Gear, if available (Second End, First Set) ()	12 Type of Arresting Gear, if available (Second End, Second Set) ()	13 Pavement Type (4) ()	14 Closed (Yes/No)	15 Serviceable (5) (Yes/No)	16 Own/controlled or Access only to runway ()
157	KOQU	16	34	59	N/A	1-Feb	8000	150	N/A	N/A	N/A	N/A	Asphalt ov	No	Yes	A
157	KOQU	5	23	N/A	N/A	N/A	4000	75	N/A	N/A	N/A	N/A	Asphalt	No	Yes	A

Section 39 Airfield Management, Question 1270 Air Operations - Auxiliary Airfield

Org	1 Airfield Name (Text)	2 Distance Main Runway to Aux field (NM)
157	GENERAL EDWARD LAWRENCE LOGAN INTL	49.5
157	OTIS ANGB	40.2

Tab 4

Mission	Fighter
Criterion	Condition of Infrastructure
Attribute	Key Mission Infrastructure
Formula #	1221
Label	Hangar Capability - Small Aircraft
Effective %	3.88
Question	Check to see if the installation has Aircraft Hangar Facilities that will accommodate F-15 sized aircraft: state the number of F-15-sized acft (61ft long x 45ft wingspan x 19ft high) that can fit in the installation's maintenance hangars without modification. If the installation has no runway or no active runway, or no serviceable, suitable runway then score 0 pts. See section 1.9 "Shared" for details. Otherwise, sum the number of aircraft the hangars can hold. See OSD Question 1221, column 2 for this data. (N/A equals 0.) If the sum is >= 24 aircraft, get 100 points. If the sum = 6 aircraft, get 25 points. If the sum is < 6 aircraft, get 0 points. Otherwise, pro-rate the number of aircraft between 6 and 24 on a 25 to 100 point scale. **Example**: 1) There are 7 hangars at the installation, with the following capacities: 0, 0, 1, 2, 2, 0, and 0, for a sum of 5 aircraft. That is less than 6 aircraft, so the score is 0. 2) There are 7 hangars at the installation, with the following capacities: 1, 2, 3, 2, 2, 3, and 2, for a sum of 15 aircraft. 15 is halfway between 6 and 24, for a score of 50.
Source	Real Property Records, Record Drawings, UFC 3-260-01

Otis was given credit for only 15 Hangar spaces. Upon further review, Otis did not take full credit for their potential hangar spaces. Total hangar capacity for small aircraft is proved to be 31. The following map with official real property record (SAF MIL7115 Report) listed quantities show these locations. The map is to scale.

Tab 5

Mission	Fighter
Criterion	Condition of Infrastructure
Attribute	Key Mission Infrastructure
Formula #	1232
Label	Sufficient Explosives-sited Parking
Effective %	3.65
Question	List the number of explosives-sited parking spots by MDS (Mission Design Series). If installation has no runway or no active runway, or no serviceable, suitable runway then score 0 pts. See section 1.9 "Shared" for details. Total the number of explosives sited parking spots. See OSD Question 1232, column 2 for this data. (N/A equals 0.) If the total >= 47, get 100 points. Otherwise, if the total >= 24, get 66 points. Otherwise, if the total >= 12, get 33 points. Otherwise, get 0 points. **Example:** The installation has two listings for explosive sited parking spots, with 5 and 20 respectively, which totals to 25. 25 is between 24 and 47, so the score is 66 points.
Source	AFMAN 91-201, Explosives Safety Standards; Installation Explosives Site Plan

Otis entered 18 explosive loaded sites based on current assigned aircraft and existing explosives site plan. The question did not ask what is the installations capability/capacity for explosive sited parking. Otis has 102 explosives loaded aircraft spots with no waivers or exceptions. This leads to an additional 2.44 points on the MCI score. Map from Tab 4 depicts in excess of 50 of the 102 loadable spots.

Tab 6

Mission	Fighter
Criterion	Condition of Infrastructure
Attribute	Key Mission Infrastructure
Formula #	1233
Label	Sufficient Munitions Storage
Effective %	4.79
Question	List maximum explosive capacity for the installation's hazard classification Class 1.1 munitions storage areas, in pounds. Maximum assumes F-117 18 PAA (GBU-27) and F/A-22 24 PAA (GBU-32 & AIM 120). If installation has no runway or no active runway, or no serviceable, suitable runway then score 0 pts. See section 1.9 "Shared" for details. Otherwise, total the capacity. See OSD question 1233, column 1 for this data. (N/A means 0.) If the total >= 45312, get 100 points. Otherwise, if the total >= 38520, get 75 points. Otherwise, if the total >= 19260, get 25 points. Otherwise, get 0 points. **Example**: There are two storage areas, with a capacity of 10,000 each, for a total of 20,000. 20,000 is between 19,260 and 38,250, so the score is 25 points.
Source	AFMAN 91-201, Explosives Safety Standards; Installation Explosives Site Plan

This answer to this question is munitions specific. A different answer will apply based on MDS and weapon system. The original answer was based on the approved site plan, which was based on a normal, realistic amount of explosive storage that was not MDS specific. It was not approved based on MDS capacity at the time. The following documentation shows how different munitions will change the final answer. The munitions storage area located at Otis is capable and approved to store HC 1.1 AIM Series Missiles totaling 31,104 lbs of NEW in each of the 40' X 80' Earth Covered Igloo's for a total capacity of 62,208 lbs. This leads to an additional 4.79 points in the MCI. The second two letters break down the maximum storage capacity based on Aim Series designation.

DEPARTMENT OF THE AIR FORCE
102D FIGHTER WING (ACC)
MASSACHUSETTS AIR NATIONAL GUARD
OTIS AIR NATIONAL GUARD BASE MASSACHUSETTS

17 June 2005

MEMORANDUM FOR RECORD

FROM 102ND Fighter Wing Safety Office
158 Reilly St., Box 15
Otis ANGB, MA. 02542-1330

SUBJECT: Sufficient Munitions Storage, Otis ANGB

1. The maximum explosive capacity hazard classification 1.1 by missile system, in pounds, without waivers.

2. AFMAN 91-201, par. 3.34, Explosive Safety Standards gives detailed guidance in the proper storage of AIM Series Missiles and adding the total hazard classification 1.1, in pounds. Testing has been completed and proven that detonation of warheads in All Up Round Containers (AURC's) will not propagate to any adjacent container either vertically or horizontally. Therefore, Maximum Credible Event (MCE) would be one AURC of four missiles when calculating Inhabited Building Distance / Quantity Distance (IBD / QD). The 40' X 80' Earth Covered Igloo's were built for the purpose to store AIM Series Missiles Hazard Class 1.1 to their physical capacity and at the same time comply with all site planning requirements.

3. The 102nd Fighter Wing is capable and is approved to store HC 1.1 AIM Series Missiles totaling 31,104 lbs in each of the 40' X 80' Earth Covered Igloo's.

//signed//
JOHN V. NOLAND, SMS, MA ANG
Ground/Explosive Safety Manager

DEPARTMENT OF THE AIR FORCE
102D FIGHTER WING (ACC)
MASSACHUSETTS AIR NATIONAL GUARD
OTIS AIR NATIONAL GUARD BASE MASSACHUSETTS

17 June 2005

MEMORANDUM FOR RECORD

FROM 102ND Fighter Wing Safety Office
158 Reilly St., Box 15
Otis ANGB, MA. 02542-1330

SUBJECT: AIM Series Missile break down

1. AIM-7 with WAU-17 warhead (36 lbs)

- 144 lbs per container
- 216 AURC's in each igloo stacking them 6 high
- 31,104 lbs in each igloo
- AURC demes ions
    - o 15' long X 3'.75' wide X 1'.7 high

2. AIM-7 with WAU-10 warhead (26 lbs)

- 104 lbs per container
- Same AURC used as above
- 22,464 lbs in each igloo

3. AIM-9X Missile, warhead (7.9 lbs)

- 31.6 lbs per container
- 200 AURC's in each igloo stacking them 5 high
- 6,320 lbs in each igloo
- AURC dimensions
    - o 11'.5 long X 3'.5 wide X 1'.9 high

//signed//
JOHN V. NOLAND, SMS, MA ANG
Ground/Explosive Safety Manager

DEPARTMENT OF THE AIR FORCE
102D FIGHTER WING (ACC)
MASSACHUSETTS AIR NATIONAL GUARD
OTIS AIR NATIONAL GUARD BASE MASSACHUSETTS

30 June 2005

MEMORANDUM FOR RECORD

FROM 102ND Fighter Wing Safety Office
158 Reilly St., Box 15
Otis ANGB, MA. 02542-1330

SUBJECT: Sufficient Munitions Storage for HC/D 1.2.1 AIM-120 Missile System

1. The maximum explosive capacity hazard classification 1.2.1 AIM-120 Missile System that can be stored at Otis Air National Guard Base, without waivers is 27,000 lbs.

2. The 102nd Fighter Wing is capable of storing the munitions specific assets in the following approved munitions storage facilities:

A. 2 each 40' X 80' Earth Covered Igloo's for a total Net Explosive Weight (NEW) of 12,000 lbs.

B. 5 each Above Ground Unbarricaded, ADC-Multicubicale Magazines (30 cells) Type II ADC, Drawing #AD 33-13-20R2 for a total NEW of 15,000 lbs.

(1) The procedure will be to physically pull the AIM-120 out of its ALL UP Round Container (AURC), which will turn the munitions item to HC/D 1.1.

(2) AIM-120's will be placed on storage stands inside each cell not to exceed 100 lbs.

a) 1 Above Ground Multicubicle Magazines with 30 cells is capable of storing 3,000 lbs.

b) 5 Magazines for a total of 15,000 lbs.

//signed//
JOHN V. NOLAND, SMS, MA ANG
Ground/Explosive Safety Manager

Tab 7

Mission	Fighter
Criterion	Condition of Infrastructure
Attribute	Operating Areas
Formula #	1203
Label	Access to Adequate Supersonic Airspace
Effective %	6.72
Question	Identify special use airspace that is suitable for supersonic training. If installation has no runway or active runway, or no serviceable, suitable runway then score 0 pts. See section 1.9 "Shared" for details. Otherwise, score each special use airspace suitable for supersonic training according to the following formula and return the single highest score. % of Score Category 50 Operating Hours 50 Size **For Operating Hours:** A supersonic special use airspace gets 100 points if it is available for use 24 hours a day and 0 points if it is unavailable for use. (N/A means unavailable for use.) For operating hours between those two boundaries, pro-rate the score linearly. See OSD question 1276, column 2 for this data. **For Size:** If the supersonic special use airspace is at least 150 nautical miles (NM) by 80 NM in size, and has an altitude block >= 30,000, get 100 points. See OSD question 1276, column 7 for this data. (N/A means no.) Otherwise, if it is at least 100 NM by 60NM and has an altitude block >= 30,000', get 80 points. See OSD question 1276, column 6 for this data. (N/A means no.) Otherwise, if it is at least 100 NM by 50 NM and has an altitude block >= 30,000', get 60 points. See OSD question 1276, column 5 for this data. (N/A means no.) Otherwise, if it is at least 80 NM by 40 NM and has an altitude block >= 30,000', get 40 points. See OSD question 1276, column 4 for this data. (N/A means no.) Otherwise, if it has an airspace volume >= 2,100 NM squared and an

	altitude block >= 20,000', get 20 points. See OSD question 1276, column 3 for this data. (N/A means no.) Otherwise, get 0 points. **Example:** A supersonic special use airspace is listed under OSD question 1276. It has an airspace of 105 NM by 61 NM in size, with an altitude block of 32,000'. That airspace is available for use 18 hours a day. (80 points for 100 NM by 60 NM, 30,000' altitude block airspace * 50%) +((75 points for 18 hours of use / (difference between 24 hours and0 hours)) * 50%), This equates to 40 size points + 37.5 operating hours points = 77.5 points for this special use airspace. The overall score is the highest score received by any one special use airspace at the installation.
Source	DoD #1203; Digital Aeronautical Flight Information Files (DAFIF), 30 Sep 04; FAA ATCAA Database

Using the referenced algorithm and stated data files, the score listed for Otis is incorrect. The formula uses data from OSD Question 1276:

Section 1 Air/Space Operations, Question 1276 Airspace Attributes - Supersonic

Org	1 Airspace Designator (Text)	2 Operating Hours (Hr)	3 Airspace Volume >=2,100NM squared and 20,000' altitude block (Yes/No)	4 At least 80NM x 40NM and altitude block >=30,000' (Yes/No)	5 At least 100NM x 50NM and altitude block >=30,000' (Yes/No)	6 At least 100NM x 60NM and altitude block >=30,000' (Yes/No)	7 At least 150NM x 80NM and altitude block >=30,000' (Yes/No)	8 Not used. (Yes/No)
27	W105	24	Yes	Yes	Yes	Yes	No	N/A
27	W106	24	No	No	No	No	No	N/A

The file lists W105 with a max block of 100NMx60NM which translates into 80 points. The operating hours translates into 100 points. The formula results in 90 points out of a hundred for this algorithm. When weighted, this results in 6.048 points, an increase of 3.358 over the posted score.

Tab 8

Mission	Fighter
Criterion	Condition of Infrastructure
Attribute	Operating Areas
Formula #	1266
Label	Range Complex (RC) Supports Mission
Effective %	11.95
Question	If installation has no runway or no active runway, or no serviceable, suitable runway then score 0 pts. See section 1.9 "Shared" for details. All airspace over 150 Nautical Miles (NM) away will be ignored. See OSD # 1245, column 2. (N/A means more than 250 NM.) Data is in OSD #s 1266, 1245 and 1274 must be matched via column 1 in each question. Calculate each of the subcategories scores listed below, and weight as listed. 15% Airspace Volume (AV) 15% Operating Hours (OH) 10% Scoreable Range (SR) 11.25% Air to Ground Weapons Delivery (AGWD) .75% Low Angle Strafe (LA) 3% Live Ordnance (LO) 5% IMC Weapon Release (IW) 10% Electronic Combat (EC) 10% Laser Use Auth. (LU) 10% Lights Out Capable (LC) 5% Flare Auth. (FA) 5% Chaff Auth. (CA) Each of the subcategories use the following general pattern for calculating them: Compute a raw total for the base by following the instructions for the respective subcategory total. Find the highest, and the lowest, non-zero raw total for the subcategory across all bases. If the raw total = 0, that subcategory score = 0. Else, if the raw total = the highest raw total, the subcategory score = 100. Else, if the raw total = the lowest, non-zero raw total, the subcategory score = 10. Else, pro-rate the raw total between the lowest non-zero score and the highest score on a 10 to 100 scale. Once each score for each subcategory is known, multiply them by their respective weighting percentage and total the results for the overall score.

	AV Raw Total: Get AV for the pts. See OSD # 1277, column 1. (N/A means 0.) **OH Raw Total:** Sum the pts for each airspace: If the OH < 1 or = N/A, get 0 pts. See OSD # 1266, column 2. Else, if the OH = 1 or IMTMT or INTMT, get 10 pts. Else, if the OH = 24 or NOTAM, get 100 pts. Else, pro-rate the OH between 0 and 24 on a 10 to 100 point scale. **SR Raw Total:** Sum the pts for each airspace: If the SR = Yes, get 100 pts. See OSD # 1266, column.3. Else, get 0 pts. **AGWD Raw Total:** Sum the pts for each airspace: If the AGWD = Yes, get 100 pts. See OSD # 1266 column 4. Else, get 0 pts. **LA Raw Total:** Sum the pts for each airspace: If the LA = Yes, get 100 pts. See OSD # 1266 column 5. Else, get 0 pts. **LO Raw Total:** Sum the pts for each airspace: If LO = Yes, get 100 pts. See OSD # 1274, column 5. Else, get 0 pts. **IW Raw Total:** Sum the pts for each airspace: If IW = Yes, get 100 pts. See OSD # 1266, column 6. Else, get 0 pts. **EC Raw Total:** Sum the pts for each airspace: If EC = Yes, get 100 pts. See OSD # 1266, column.7. Else, get 0 pts. **LU Raw Total:** Sum the pts for each airspace: If LU = Yes, get 100 pts. See OSD # 1266, column 8. Else, get 0 pts. **LC Raw Total**

	Sum the pts for each airspace: If LC = Yes, get 100 pts. See OSD # 1266, column 9. Else, get 0 pts. **FA Raw Total** Sum the pts for each airspace: If FA = Yes, get 100 pts. See OSD # 1274, column 3. Else, get 0 pts. **CA Raw Total** Sum the pts for each airspace: If CA = Yes, get 100 pts. See OSD # 1274, column 4. Else, get 0 pts. **Example:** AV = 20,000, get 20,000 pts; 10. There are two airspaces within 150 NM, and they both have these characteristics (which means their raw totals will be double the number of pts listed) followed by the lowest non-zero and highest raw totals across all bases and subcategory scores. OH = NOTAM, get 100 pts; 20,000 to 150,000 pts; 10. SR = Yes, get 100 pts; 200 to 500 pts; 10. AGWD = No, get 0 pts; 200 to 1000 pts; 10. LA = No, get 0 pts; 200 to 1000 pts; 0. LO = Yes, get 100 pts; 500 to 1000 pts; 10. IW = N/A, get 0 pts; 200 to 2000 pts; 0. EC = N/A, get 0 pts; 200 to 1000 pts; 0. LU = Yes, get 100 pts; 100 to 1000 pts; 20. LC = Yes, get 100 pts; 200 to 1000 pts; 10. FA = No, get 0 pts; 100 to 1000 pts; 0. CA = No, get 0 pts; 100 to 1000 pts; 0. Weighted, the overall score = 8.425 pts.
Source	FLIP AP-1A; Falcon View or other certified flight planning software

We re-created this formula using ArcGIS and Excel using the stated algorithms. Although we could replicate the example with our program, we could not duplicate the scores posted for this question. Therefore, we could not calculate the exact increase to the posted score. The three additional airspaces drive our overall rank for airspace volume (AV) to number one. Adding the three additional airspaces and correcting faulty airspace attribute data could lead to an increase as high as 2 points. We did not receive full credit for this question and it is NOT reflected in our recalculated MCI.

Tab 9

Mission	Fighter
Criterion	Contingency, Mobilization, Future Forces
Attribute	Mobility/Surge
Formula #	1241
Label	Ability to Support Large-Scale Mobility Deployment
Effective %	1.76
Question	State installation's parking MOG for C-17 equivalents using surveyed/approved transient parking ramps. If installation has no runway or no active runway, or no serviceable, suitable runway then score 0 pts. See section 1.9 "Shared" for details. Otherwise, total the number of C-17 equivalents the installation transient ramp can hold. See OSD question 1241, column 1 for this data. (N/A equals 0.) If the total >= 6, get 100 points. Otherwise, if the total >= 4, get 75 points. Otherwise, if the total >= 2, get 25 points. Otherwise, get 0 points. **Example:** The installation transient ramp can hold 5 C-17 equivalents. 5 is between 4 and 6, so the score is 75 points.
Source	ASR (Airfield Suitability Report)

Otis listed the ability to park three C-17s in the original data call. However, this was based on transient parking in a designated small area of the F-15 main ramp. It did not take into consideration the two other serviceable ramps at Otis.

Using all available serviceable ramps, Otis can park in excess of eight C-17s. The attached map (Diagram 1, Tab 4) shows the layout meeting all airfield-parking criteria. This leads to an additional 1.32 points in our MCI score.

- LETTER OF AGREEMENT ON FILE IN BASE OPS IN LOA BINDER
- ACCURATE, STILL IN EFFECT LAST REVIEW 14 APR 04

FEDERAL AVIATION ADMINISTRATION
BOSTON AIR ROUTE TRAFFIC CONTROL CENTER

TO: ALL HOLDERS OF THE BOSTON ARTCC/NE ADS/552ND ACW/101ST ACS/102ND ACS/ 103RD ACS/ 174TH FW/103RD FW/305TH AMW LETTER OF AGREEMENT DATED MAY 22, 1997.

1. PURPOSE: To transmit a new effective date for the new Boston ARTCC, NE ADS, 552nd ACW, 101st ACS, 102nd ACS, 103rd ACS, 174th FW, 103rd FW, and the 305th AMW Letter of Agreement dated May 22, 1997.

2. EFFECTIVE DATE: August 15, 1997.

3. CANCELLATION: Boston ARTCC, Northeast Air Defense Sector, 9th Air Force, 28th Air Division, and 380th Bomb Wing Letter of Agreement dated December 10, 1990.

4. PRINCIPAL CHANGES:

a. To change the effective date on the proposed agreement from May 22, 1997 to August 15, 1997.

b. Telephone number changes to Appendix A for AWACS scheduling.

c. Signature for the 305th Air Mobility Wing has been replaced by the 305th Operations Group Commander.

Heather Ackerman
Acting Air Traffic Manager
Boston ARTCC

Attachment

DISTRIBUTION: #1, NE ADS, 552 ACW, 101 ACS, 102 ACS, 103 ACS, 174 FW, 103 FW, 305 AMW, ANE-900/901/902, ANE-530, AEA-530, Montreal ACC, Toronto ACC, Moncton ACC, New York ARTCC, Cleveland ARTCC, 104 FW, 158 FW, 102 FW, 157 ARW, 101 ARW, 107 ARW, 171 ARW, 152 ACG

INITIATED BY: ZBW-530

Boston Air Route Traffic Control Center (ARTCC), Northeast Air Defense Sector (NE ADS), 552nd Air Control Wing (ACW), 101st Air Control Squadron (ACS), 102nd ACS, 103rd ACS, 174th Fighter Wing (FW), 103rd FW, and 305th Air Mobility Wing (AMW)

LETTER OF AGREEMENT

EFFECTIVE: May 22, 1997

SUBJECT: Procedures for the Scheduling and Control of Military Aircraft within Boston Center Special Use Airspace (SUA) and Air Traffic Control Assigned Airspace (ATCAA)

1. PURPOSE: To define airspace areas, and the responsibilities associated with scheduling, coordination and control procedures for Military and Contract Aircraft, Military Schedulers, Military Radar Units (MRU), and Boston Center. These procedures are supplementary to those contained in the current issues of FAAH 7110.65 and FAAH 7610.4.

2. CANCELLATION: Boston ARTCC, Northeast Air Defense Sector, 9th Air Force, 28th Air Division, and 380th Bomb Wing Letter of Agreement dated December 10, 1990.

3. SCOPE: This agreement applies to the operation of Military and Contract Aircraft within the Boston Center SUA/ATCAA areas as defined in Attachment No. 1 through Attachment No. 12, and E3 orbit airspace as defined in Attachment No. 15 through Attachment 18.

4. RESPONSIBILITIES:

a. Commanders of Military Scheduling Units, MRUs, and the Manager of Boston Center shall ensure that all personnel involved with the scheduling, coordination and control procedures of Military and Contract Aircraft are familiar with the contents of this Letter of Agreement (LOA).

b. MARSA applies:

(1) between participating aircraft entering, operating within, or exiting SUA/ATCAA, until standard ATC separation is established.

(2) for participating aircraft operating under MRU control or under autonomous operations.

(3) between aircraft operating within abutting SUA/ATCAA, when such airspace is simultaneously in use, under MRU control, or under autonomous operations.

5. SCHEDULING PROCEDURES:

a. No SUA/ATCAA may be used without prior coordination with the scheduling unit.

b. Military Schedulers shall:

(1) only schedule that airspace necessary to comply with the requirements of their scheduled mission.

(2) ensure that all flying units using the SUA/ATCAA are properly briefed on the procedures contained in this LOA.

(3) schedule SUA/ATCAA as defined in Attachment No. 1 through Attachment No. 12, determine priority of use, and de-conflict all airspace from other military operations.

(4) advise aircrews when there is adjacent SUA/ATCAA activity, whether it is autonomous or MRU control, and ensure they are familiar with the MARSA procedures contained in paragraph 4.b.(3) of this agreement.

(5) advise the Boston Center Mission Coordinator (MC) of any revisions, additions, or cancellations of any scheduled airspace.

c. The 552nd ACW (AWACS) shall confirm SUA/ATCAA airspace with the appropriate scheduling agency and coordinate with Boston Center for E3 orbit airspace as depicted in Attachment No. 15 through Attachment No. 18.

d. The NE ADS, Sector Air Operations Center (SAOC) and Airspace Scheduling Office (DOOS) shall schedule all airspace as necessary for its Air Defense assets.

e. Boston Center shall:

(1) advise schedulers when adjacent SUA/ATCAA is scheduled and if the military airspace will be autonomous or under MRU control.

(2) NOT be responsible for determining which military aircraft are authorized to utilize SUA/ATCAA.

(3) advise the 552nd ACW as soon as possible when the E3 cannot be accommodated in an approved orbit to preclude the launching of the aircraft needlessly.

Note: Normal ETE from Tinker AFB to orbit airspace is 3 hours.

6. SUA/ATCAA PROCEDURES:

a. The MRU (Ground units only) or scheduling unit shall request:

(1) MOAs from the Boston Center MC prior to scheduled use according to the following parameters:

(a) CONDOR - 2 1/2 hours.

(b) FALCON, YANKEE - 1 hour if used within the charted days and times, otherwise 2 1/2 hours.

(2) ATCAAs from the Boston Center MC at least 1 hour prior to scheduled use. Extensions shall be made as soon as possible but not less than 10 minutes before the original expiration time.

Note: SCOTY B ATCAA needs to be coordinated with the 305th AMW before it can be scheduled with Boston Center (Attachment No. 14).

b. The 174th FW shall:

(1) submit a monthly schedule for the SYRACUSE 1 MOA to Boston Center,

(2) resolve all conflicts with IR801 prior to scheduling the SYRACUSE 1 MOA.

c. The 103rd FW may schedule the YANKEE 2 MOA for VFR operations at 5,000 feet MSL and below.

d. Military aircrews:

(1) with the exception of Warning Areas and paragraph 6.d.(2) shall:

(a) file an IFR flight plan 30 minutes prior to proposed departure time.

(b) ensure the IFR flight plan contains an entry fix, name of SUA/ATCAA with the delay, and an exit fix (Attachment No. 13).

(c) request and receive an ATC clearance to enter/exit SUA/ATCAA.

✳ Note: An "as filed" departure clearance does not constitute a clearance to delay in SUA/ATCAA.

(2) DO NOT require an IFR flight plan or an entry/exit clearance for the DRUM and SYRACUSE MOAs or the YANKEE 2 MOA 5,000 feet MSL and below.

(3) shall be aware that NO IFR protection is provided in the:

(a) SYRACUSE 1 MOA beyond the days and times in the published schedule.

(b) YANKEE 2 MOA beyond the times scheduled by the 103rd FW.

(4) scheduled to operate in YANKEE 2 MOA for VFR operations at 5,000 feet MSL and below, shall contact Bangor AFSS on 255.4 MHZ prior to entry and provide an entry and exit time.

(5) when advised by ATC to remain clear of the Laconia Airspace, shall not fly in the Southeast corner of YANKEE 2 MOA, as depicted in Attachment No. 4, below 6,000 feet MSL.

(6) shall be aware that the FALCON MOA and the AKS 1 ATCAA encompass R-5201 (Attachment No. 2 and Attachment No. 3). The dimension, times and altitudes of R-5201 are published.

e. Boston Center shall:

(1) sterilize the SYRACUSE 1 MOA according to the monthly schedule submitted by the 174th FW.

(2) sterilize the YANKEE 2 MOA 5,000 feet MSL and below when scheduled by the 103rd FW.

(3) with the exception of paragraph 6.e.(1) and 6.e.(2), activate the SUA/ATCAA only upon the issuance of an ATC clearance to the first aircraft or formation flight to enter/delay in the SUA/ATCAA.

(4) activate Warning Areas on the scheduled time.

7. **AUTONOMOUS PROCEDURES:** In this agreement Autonomous Operations and Fighter Control are synonymous, and describe missions where aircrews are responsible for airspace integrity.

a. Autonomous operations are authorized in SUA/ATCAA.

b. Aircrews shall:

(1) monitor Boston Center assigned frequency while operating within SUA/ATCAA or 243.0 MHZ if cleared off Boston Center frequency.

(2) notify Boston Center 5 minutes prior to exiting SUA/ATCAA. Formation flights shall advise at this time if their intention is to breakup and return as separate elements.

(3) cancel the SUA/ATCAA with the Boston Center Sector Controller by the last aircraft exiting the airspace. Exception: Warning Areas and paragraph 6.d.(2).

c. Boston Center shall:

(1) clear aircraft into the SUA/ATCAA for the duration of the delay.

(2) after receiving a 5 minute notification from the aircrew, issue ATC clearance instructions to the aircrew.

(3) for traversals amend the altitude block when necessary via direct air to ground communications with the user until the traversal aircraft is clear of SUA/ATCAA.

Note: If required, ensure the appropriate altitude adjustment factor is applied, in accordance with paragraph 9.c. of this agreement.

8. MRU PROCEDURES:

a. The MRU:

(1) shall closely monitor its use and advise the Boston Center MC of delays and periods of non-use. Such periods of 30 minutes or more shall be released to Boston Center for ATC use.

(2) may coordinate for Mode 3 Codes prior to activation of the airspace.

(3) may conduct radar correlation checks with Boston Center to verify their equipment performance.

(4) shall notify Boston Center 5 minutes prior to the aircraft exiting SUA/ATCAA and provide the Boston Center Sector Controller with the following information:

- Aircraft identification/flight lead
- Flight breakup
- Special handling requirements
- Requested altitude

(5) shall after receiving clearance instructions from ATC, issue the clearance verbatim to the exiting aircraft.

(6) shall cancel the SUA/ATCAA with the Boston Center MC after the last aircraft has exited the airspace.

(7) shall immediately notify Boston Center when radio contact is lost/not established with aircraft under their control and provide Boston Center with the following information:

- Call sign, number/type aircraft, and beacon code.
- Position, altitude, and heading.
- Flight conditions if known.
- ETA at recovery base.

(8) shall immediately notify Boston Center when there is a loss of MRU radar control capability and:

(a) direct aircraft to remain within the approved SUA/ATCAA. Tanker aircraft operating in an SUA/ATCAA where a published anchor track exists shall maintain that air refueling pattern at last assigned altitude.

(b) inform Boston Center of the situation and estimate when control will be restored, and advise of aircrew intentions (return to base or remain autonomous).

b. Boston Center shall:

(1) clear aircraft into the SUA/ATCAA for the duration of the delay.

(2) at the time of hand-off issue an appropriate ATC clearance for aircraft exiting SUA/ATCAA.

Note: When a clearance is issued to the MRU, and that clearance takes the aircraft into another Sector's airspace, the Sector issuing the clearance is responsible for the coordination.

c. The MRU and the Boston Center Sector Controller shall:

(1) effect a radar hand-off:

(a) only after the elimination of any potential conflict with other aircraft under their control.

(b) prior to the aircraft entering the receiving controllers airspace.

(c) by bearing/distance in relation to common reference points listed in Attachment No. 14.

(2) NOT change the aircraft's flight path/altitude until the aircraft is established in airspace under their control.

d. Boston Center, for traversals, shall:

(1) coordinate with the MRU for approval at least 5 minutes prior to the traversal aircraft entering SUA/ATCAA.

(2) obtain a release of altitudes/flight levels as appropriate throughout the entire SUA/ATCAA for separation purposes.

(3) provide a point-out of the traversal aircraft to the MRU.

Note: If required, ensure the appropriate altitude adjustment factor is applied, in accordance with paragraph 9.c. of this agreement.

e. Visiting MRUs may operate under the terms of this agreement provided:

(1) they have coordinated with the appropriate scheduling unit.

(2) the scheduling unit has briefed the visiting MRU on the procedures contained in this agreement and provided a copy to them.

(3) the commander of each visiting MRU returns a completed copy of Appendix B to Boston Center.

9. AERIAL COMBAT TACTICS (ACT):

a. ACT operations conducted in the following combined MOA/ATCAA combinations shall operate on station altimeter setting derived as indicated below:

- FALCON/AKS 1 through 5 use GSS Altimeter.
- YANKEE 1/LASER use LEB Altimeter.
- CONDOR/SCOTY use AUG Altimeter.
- MOT Areas use FMH Altimeter (If above FL180 only use 29.92).

b. If aircraft are autonomous control, the MRU, or Boston Center shall ensure that aircraft:

(1) conducting ACT in a combined MOA/ATCAA are issued the appropriate altimeter setting.

(2) transitioning from a combined high/low operation to a high only operation at and above FL180 reset their altimeter to 29.92.

c. Boston Center shall apply the appropriate altitude adjustment factor to determine the lowest usable flight level to provide vertical separation from ATCAA airspace.

10. AERIAL REFUELING (AR):

a. Anchor aerial refueling, in an SUA/ATCAA, with an MRU.

(1) Military schedulers shall:

(a) advise aircrews when there is adjacent SUA/ATCAA activity, whether it is autonomous or MRU control.

(b) ensure aircrews are familiar with the MARSA procedures contained in paragraph 4.b.(3) of this agreement.

(2) Aircrews shall ensure their IFR flight plan contains the computer code name of the SUA/ATCAA (see Attachment No. 13), with the anticipated delay.

b. Anchor aerial refueling, in an SUA/ATCAA, without an MRU (Autonomous).

(1) Military schedulers shall:

(a) advise aircrews when there is adjacent SUA/ATCAA activity, whether it is autonomous or MRU control.

(b) ensure aircrews are familiar with the MARSA procedures contained in paragraph 4.b.(3) of this agreement.

(2) Aircrews shall ensure their IFR flight plan contains the computer code name of the SUA/ATCAA (see Attachment No. 13), with the anticipated delay.

(3) The Tanker Commander upon entering SUA/ATCAA accepts responsibility for the SUA/ATCAA activity regardless of the number of Tankers or Receivers.

c. Aerial refueling on a published AR Anchor NOT using the associated SUA/ATCAA.

(1) Military schedulers shall:

(a) ensure that aircrews are informed of abutting non-associated SUA/ATCAA activity, that is separated but adjacent to the AR Anchor lateral protected airspace.

(b) ensure that visiting aircrews are familiar with aerial refueling procedures contained in this agreement.

(2) Aircrews shall:

(a) ensure the IFR flight plan contains an entry fix (a delay if needed), name of AR Track, and an exit fix.

(b) as soon as possible advise Boston Center of end of AR request.

(3) Boston Center shall clear aerial refueling aircraft on to and off of the AR Track.

11. E3 MRU OPERATIONS: The E-3 orbit patterns are depicted in Attachment No. 15 through Attachment No. 18. A single flight level between FL270 - FL310 is required. Other orbits which are acceptable to the Center may be negotiated for individual missions and exercises. E-3 orbit patterns within the Center's airspace are not considered blocked or sterilized airspace. Standard ATC separation procedures apply.

a. AWACS shall:

(1) correlate their radar while en route in accordance with FAAH 7610.4, paragraph 13-9-e.

(2) retain aircraft under its jurisdiction at least 5 NM inside the perimeter of the SUA/ATCAA.

(3) remain within the defined lateral and vertical confines of the assigned orbit area.

(4) request through the Boston Center Sector Controller prior to changing the orbit flight track, circle/figure eight's, etc.

b. The Center shall assign different frequencies to the E-3 flight deck crew (front of the aircraft) and the MRU (rear of the aircraft). Frequencies for the MRU shall be specified during the advance coordination for the mission assigned.

(1) Augusta Orbit - 377.15 UHF/No VHF assigned.

(2) Plattsburgh, Watertown Orbit - 354.1 UHF/133.625 VHF.

(3) W105, Nantucket Orbits - 380.15 UHF/No VHF assigned.

12. MISCELLANEOUS PROCEDURES:

a. Interceptors may be scrambled to assist aircraft experiencing in-flight emergencies. These interceptors shall be afforded the same priority normally associated with an active air defense mission.

b. Boston Center shall forward all Communications Instructions for Reporting Vital Intelligence Sightings (CIRVIS) reports received from any source as quickly as possible to the NE ADS SAOC Mission Crew Commander (MCC) using the following telephone numbers:

(1) 587-6802/6803/6811/6812 DSN

(2) (315) 334-6802/6803/6811/6812

(3) Via Land-Line: IA 9269 or 9270, then dial 602 or 603

c. Electronic Counter Measures (ECM) Advisories.

(1) Annual authorizations for ECM/Chaff drops are coordinated between FAA HQ Spectrum Engineering Division (ASM-500) and the Air Combat Command (ACC). ECM/Chaff drops shall be in compliance with annual authorization requirements. Aircrews shall issue ECM/Chaff advisories to ATC prior to conducting approved ECM, or dispensing of approved Chaff.

(2) If Boston Center or terminal radar systems are adversely effected by ECM/Chaff, Boston Center shall request suspension of ECM/Chaff to the aircraft using the terms Stop Buzzer, Stop Stream, or Stop Burst. If unable to contact the aircraft ATC shall contact the NE ADS Data Quality Monitor (DQM), specifying the band and channel affected if known, and when feasible the expected duration of suspension.

d. Aircrews conducting counter-narcotic training in accordance with exemption No. 5305 shall:

(1) operate only in ATCAA Areas depicted in Attachment No. 3, 5, 7, 8, and 10, at FL180 or above.

(2) operate with required lights on while en route to/from the ATCAA.

(3) operate mode C transponders on the assigned code at all times within the ATCAA.

(4) advise Boston Center Sector Controller of intention to operate in the ATCAA without lights under exemption No. 5305.

13. AIR SOVEREIGNTY TESTS (AST) NE ADS:

a. NE ADS exercise branch shall:

(1) coordinate all ASTs with Boston Center at least five days in advance.

(2) request SUA/ATCAA for ASTs with the Boston Center MC at least two hours in advance.

(3) coordinate the hand-off procedures of the target aircraft with the appropriate Boston Center Sector 15 to 30 minutes prior to target initial point (IP).

b. Boston Center shall:

(1) assign the appropriate beacon code to the target aircraft.

(2) NOT pass any information on target aircraft (NOPAR) to HUNTRESS Control.

(3) release target aircraft to ZOOM Control frequency prior to target IP.

Note: If coordination is NOT accomplished in accordance with 13.a.(3), Boston Center shall terminate radar service on the target aircraft prior to the IP and instruct the aircraft to contact ZOOM Control.

14. ATTACHMENTS:

No. 1 thru No. 12	- SUA/ATCAA Maps with Coordinates
No. 13	- Computer Fixes
No. 14	- Common Reference Points
	- SUA/ATCAA Scheduling Agencies
No. 15 thru No. 18	- E-3 Orbit Airspace
Appendix A	- E-3 Advanced Coordination Check-List
Appendix B	- Visiting MRU Signature Page

SIGNATURE PAGE

Boston Center is the originator of this Letter of Agreement. Each command or facility shall have an original signature page to be retained on file. Boston Center shall retain each individual signature page, from each command or facility, and maintain them on file at Boston Center.

SIGNATURE ON FILE
Heather Ackerman
Acting Air Traffic Manager
Boston ARTCC

SIGNATURE ON FILE
John K. Scott, Col USAF
Commander
Northeast Air Defense Sector

SIGNATURE ON FILE
James W. Morehouse, Col USAF
Commander
552nd Air Control Wing

SIGNATURE ON FILE
Robert A. Johnson, Lt Col ANG
Commander
101st Air Control Squadron

SIGNATURE ON FILE
Wayne R. Mrozinski, Lt Col ANG
Commander
102nd Air Control Squadron

SIGNATURE ON FILE
David C. Clarke, Lt Col ANG
Commander
103rd Air Control Squadron

SIGNATURE ON FILE
Robert A. Knauff, Lt Col ANG
Commander
174th Fighter Wing

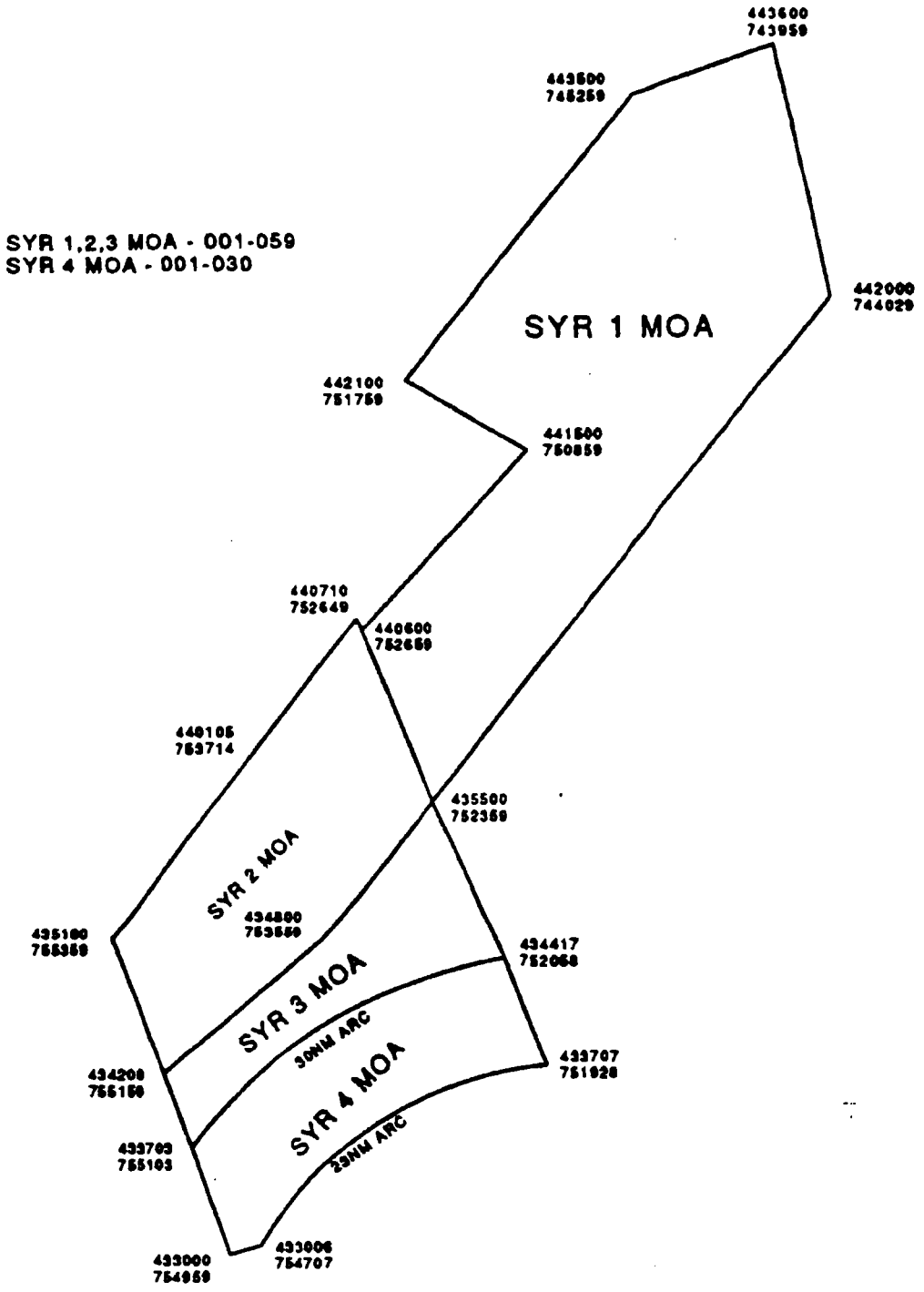
SIGNATURE ON FILE
James M. Skiff, Col ANG
Commander
103rd Fighter Wing

SIGNATURE ON FILE
Pual E. Schutt, Col USAF
Commander
305th Operations Group

BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/ 103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

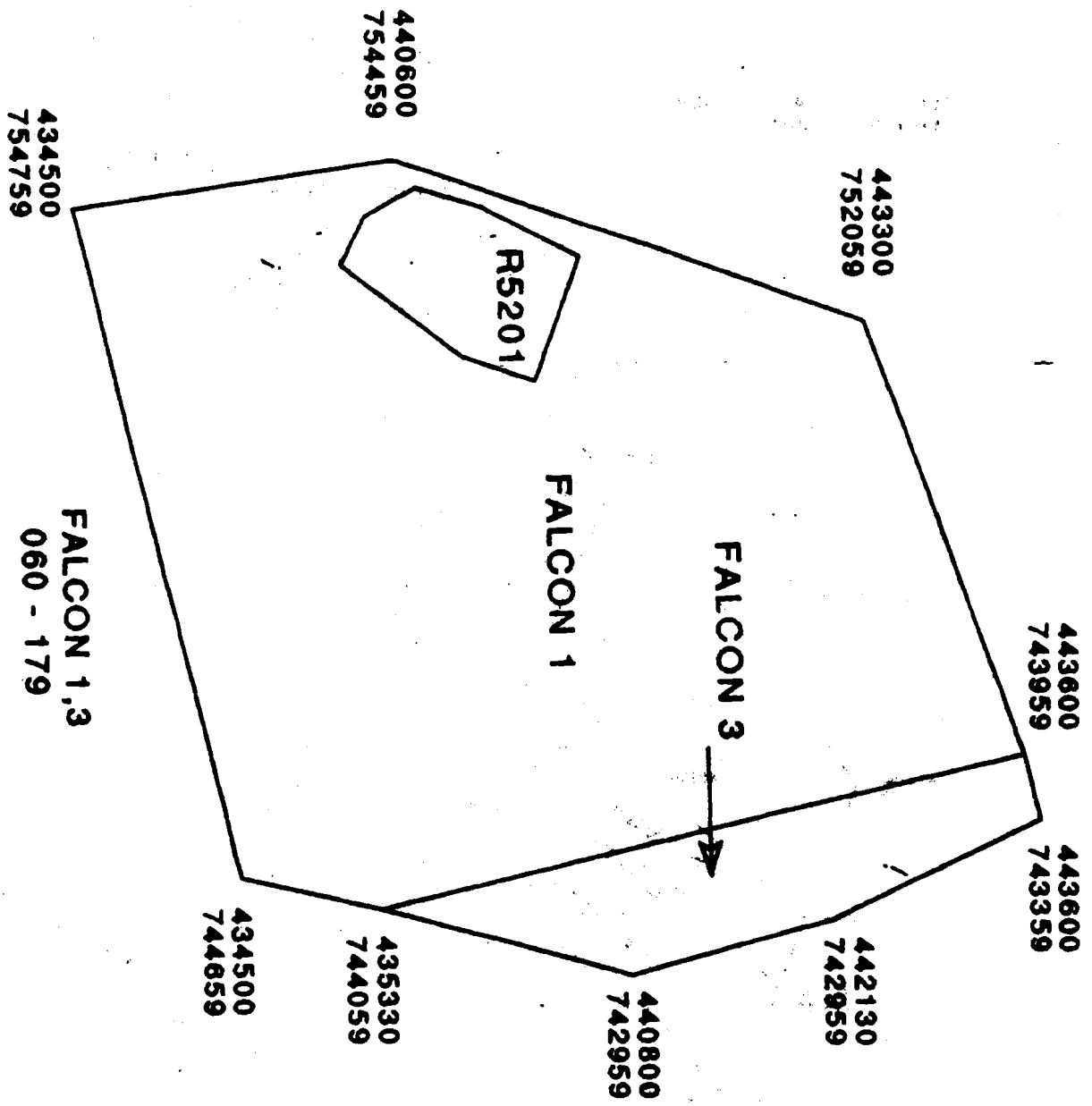
ATTACHMENT NO. 1.



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

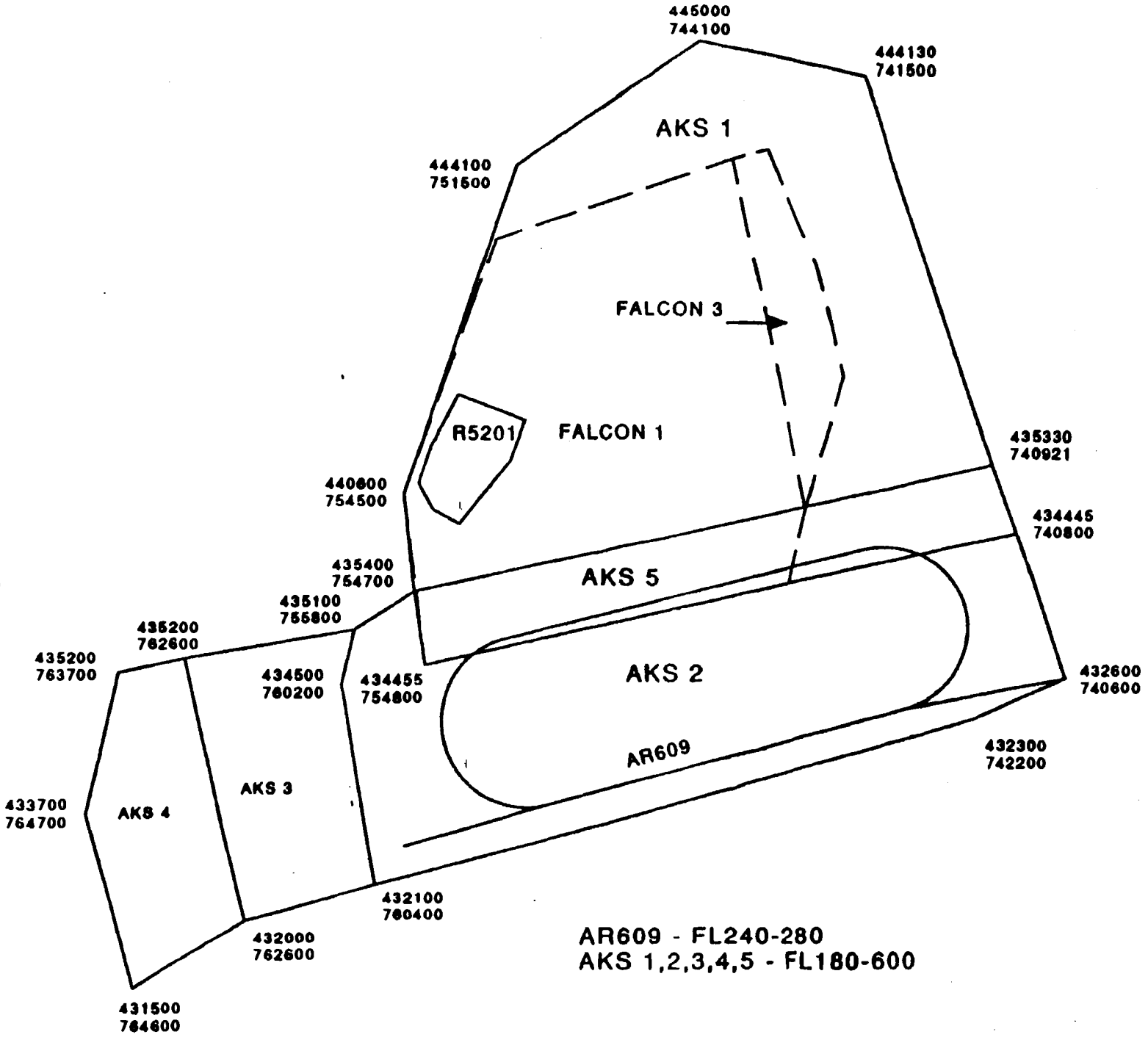
ATTACHMENT NO. 2



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

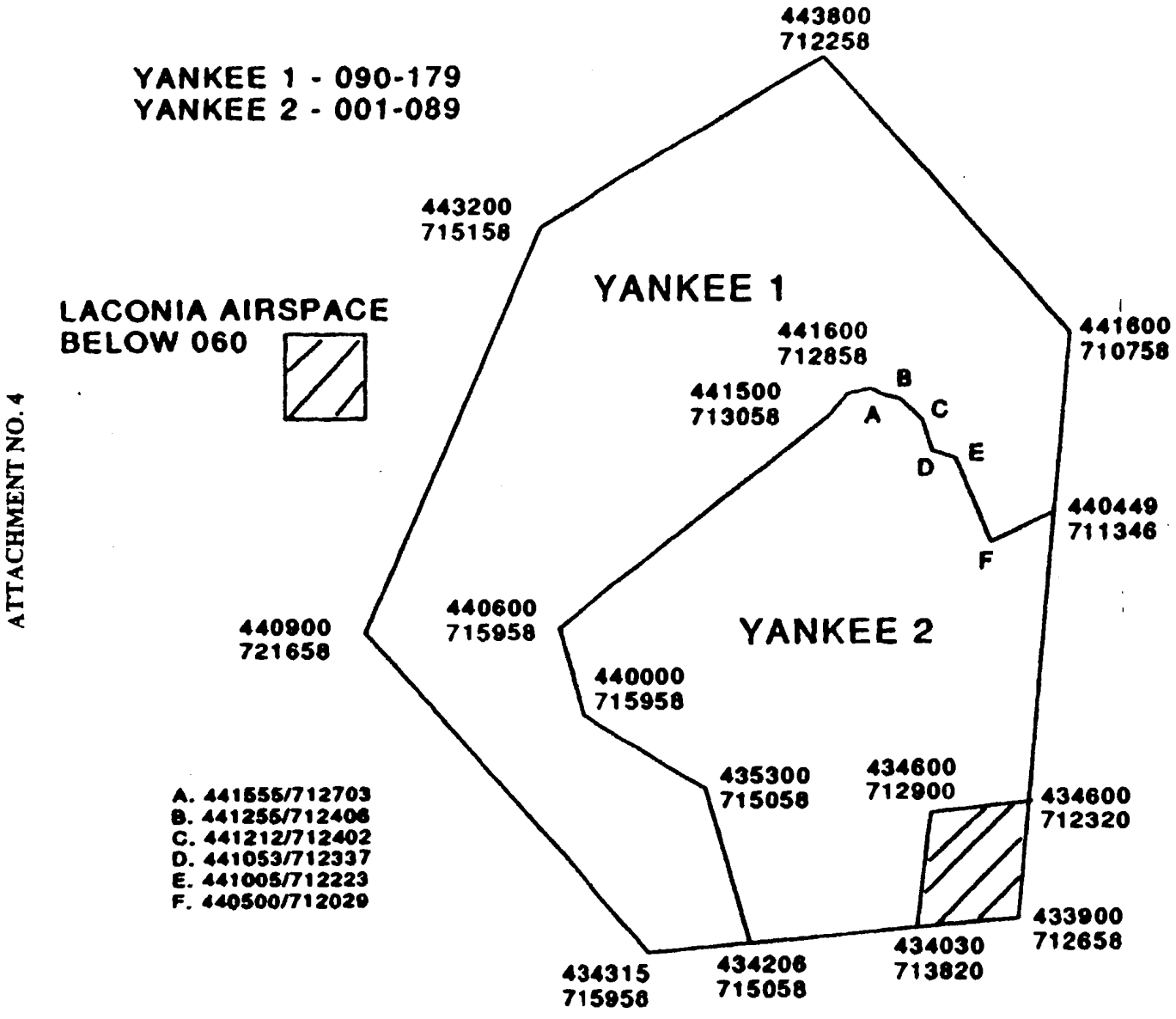
ATTACHMENT NO.3



MAY 22, 1997

BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

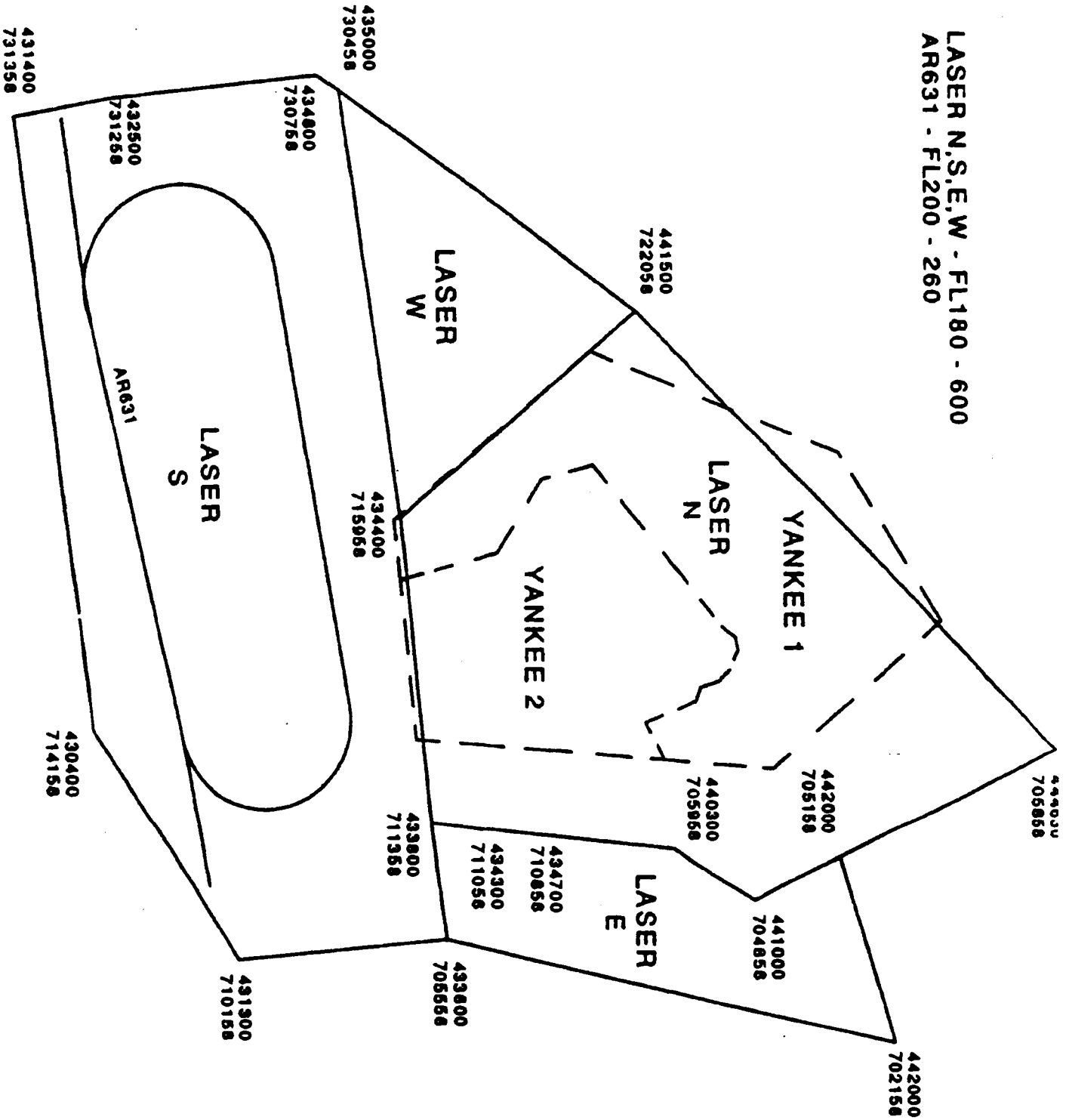
ATTACHMENT NO. 4



MAY 22, 1997

BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

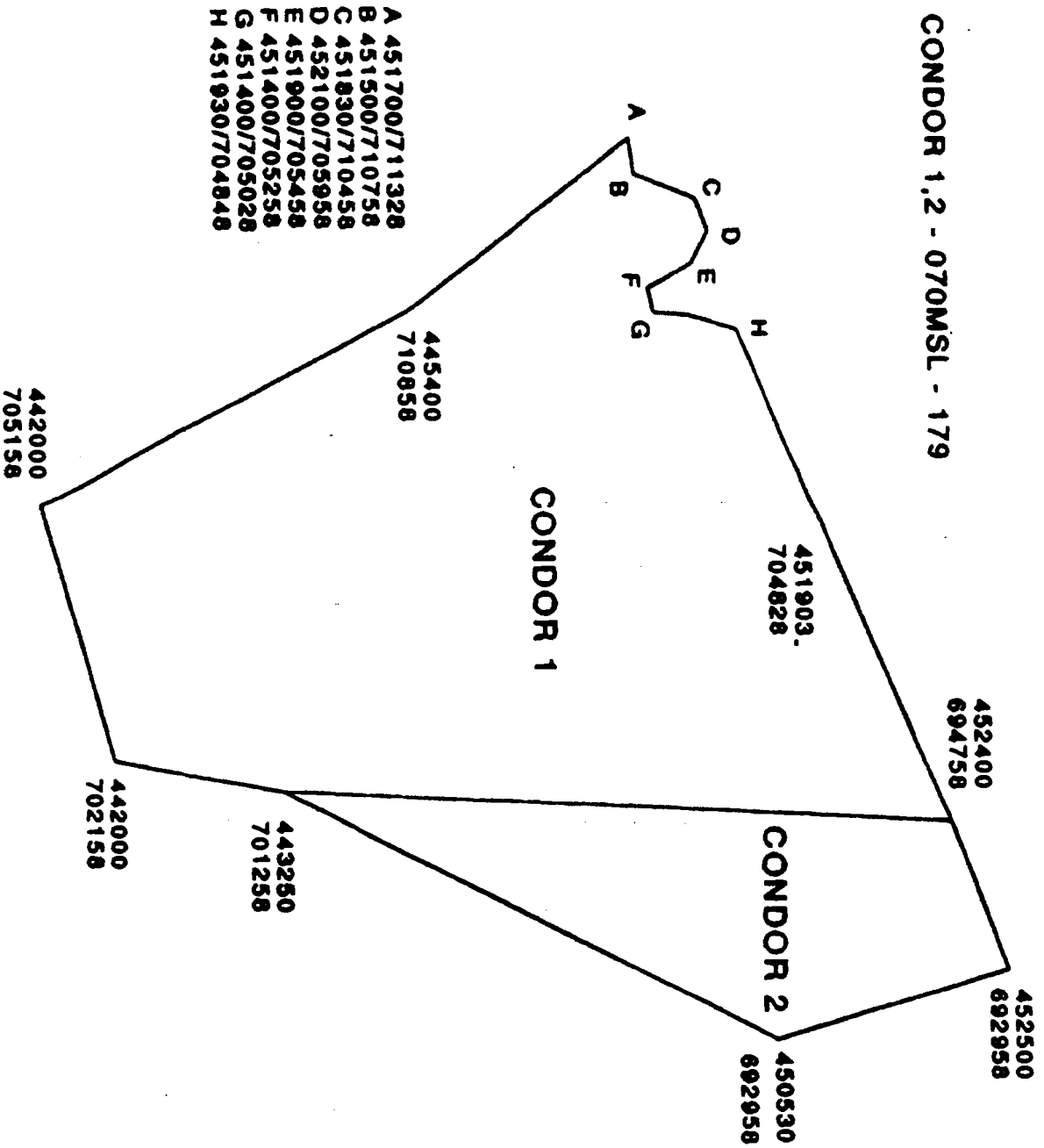
ATTACHMENT NO. 5



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

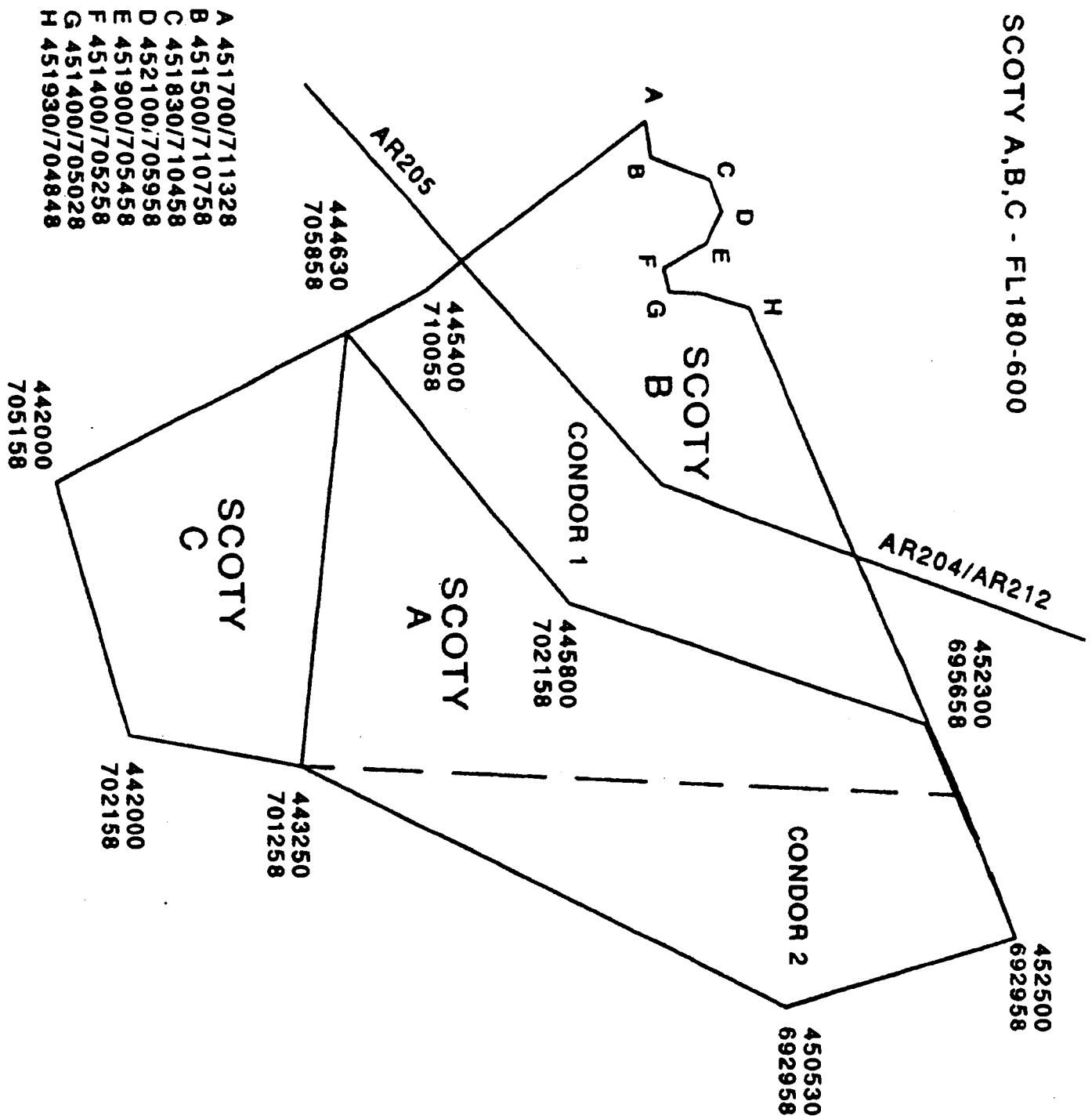
ATTACHMENT NO. 6



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

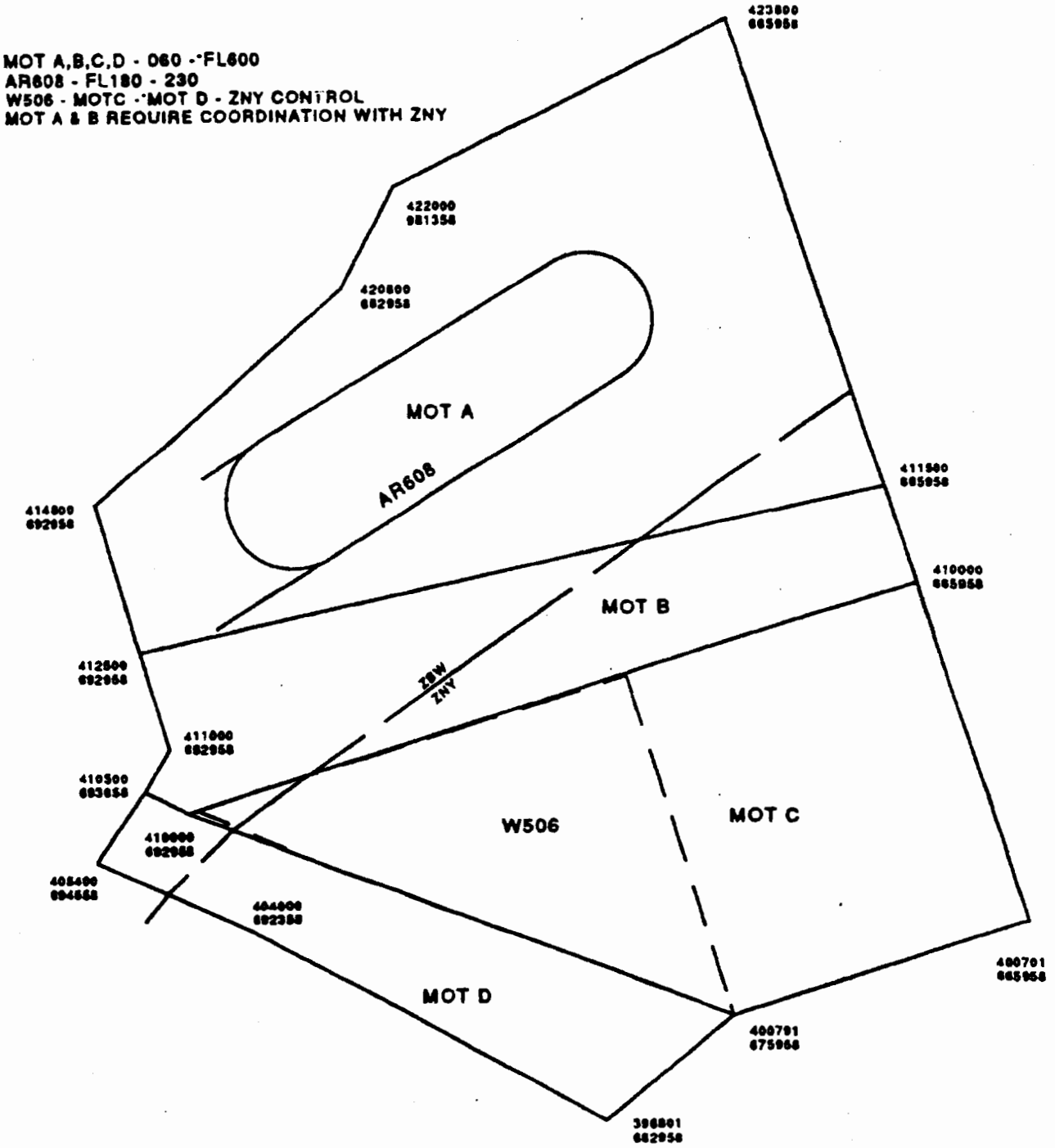
ATTACHMENT NO. 7



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

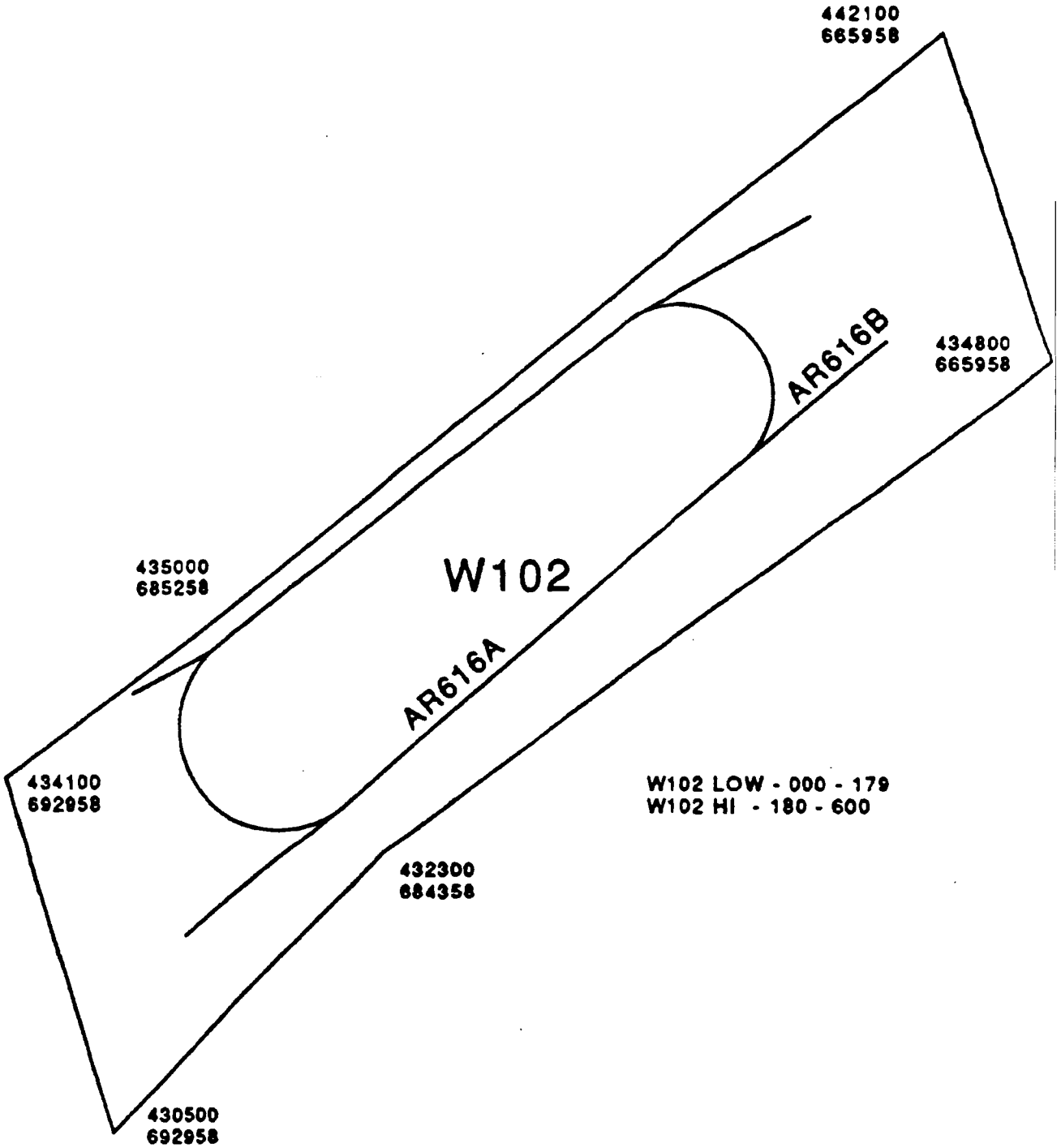
ATTACHMENT NO. 8



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

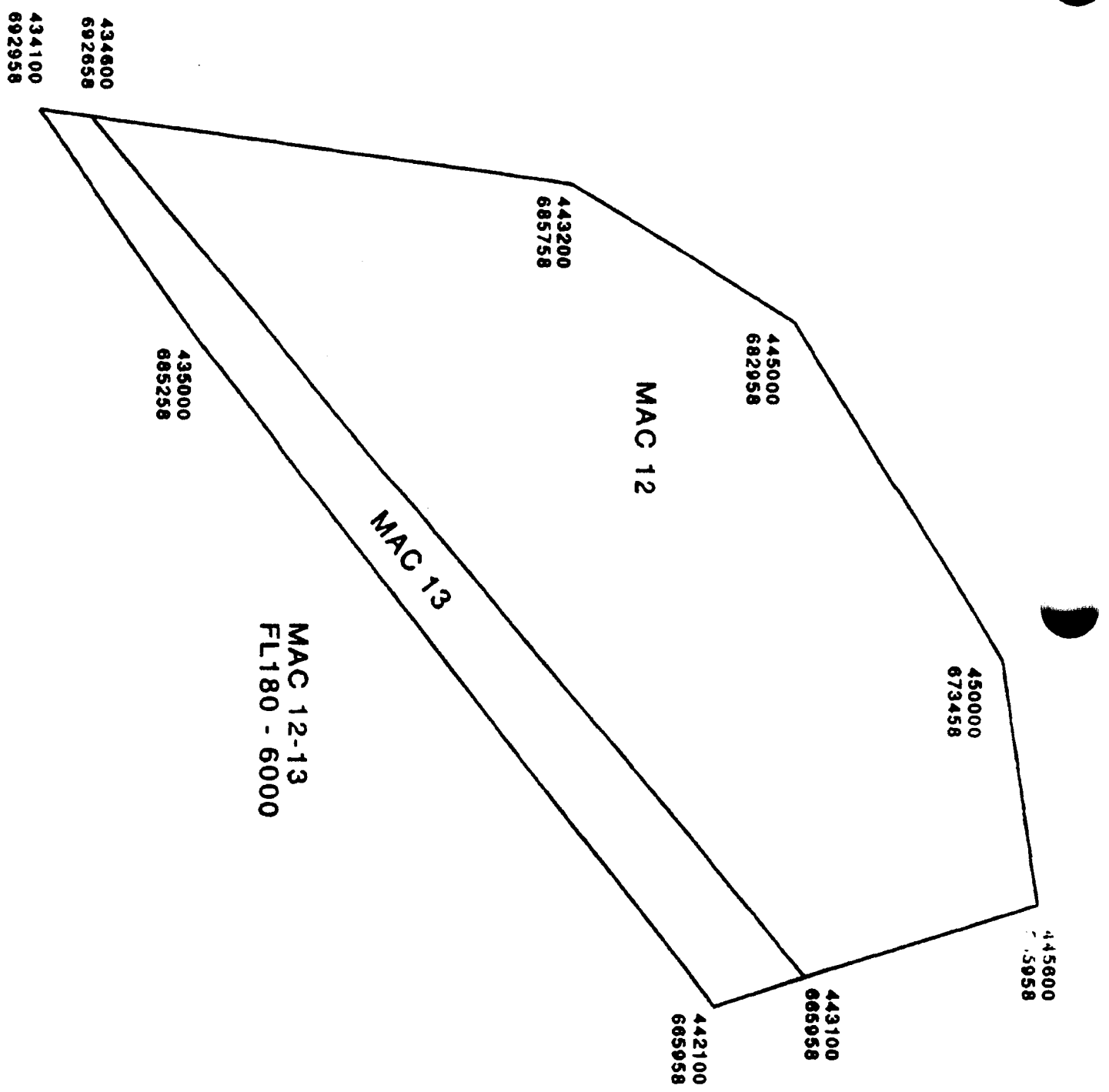
ATTACHMENT NO. 9



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

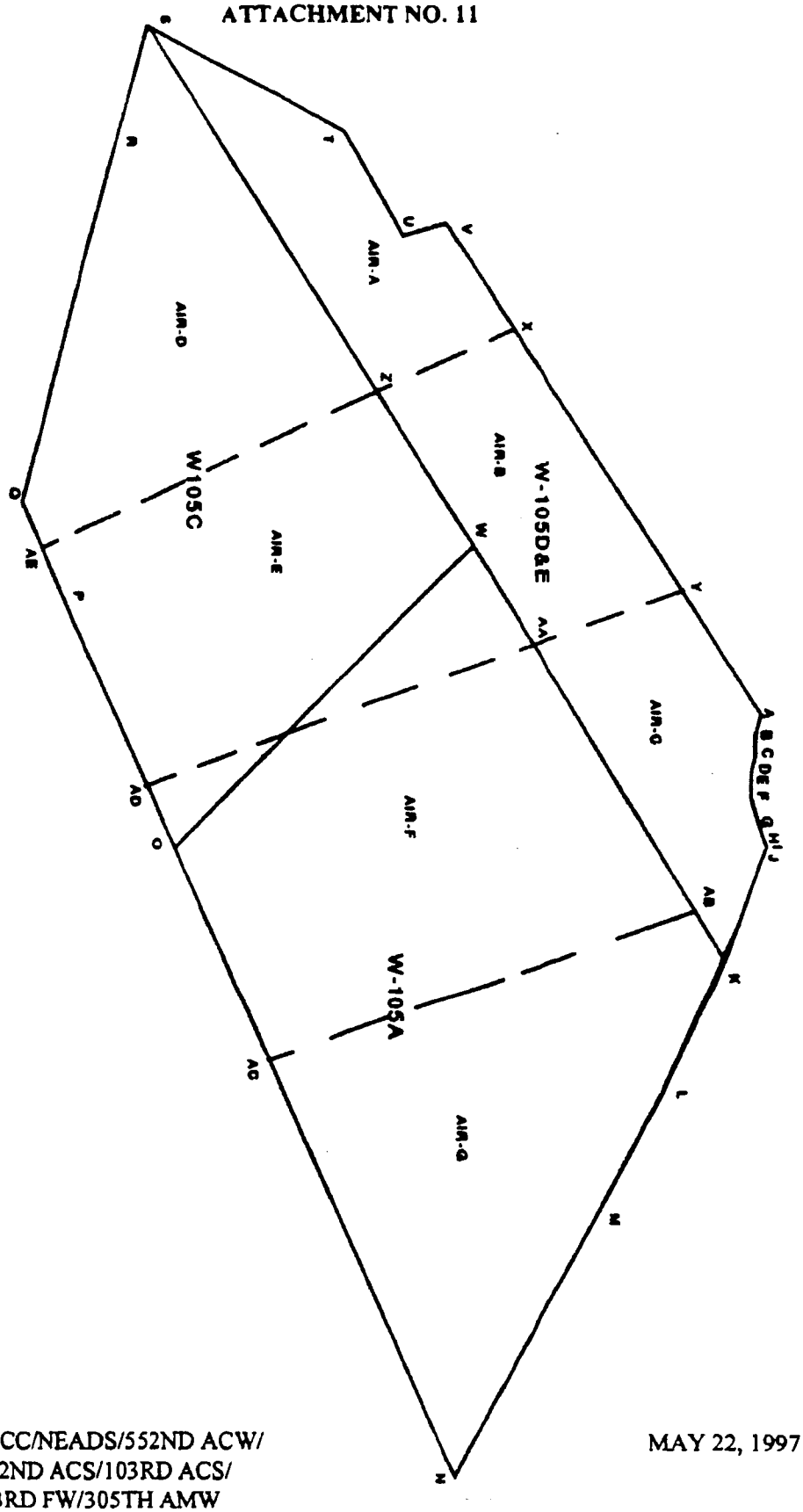
ATTACHMENT NO. 10



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

ATTACHMENT NO. 11



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

ATTACHMENT NO. 12
W105 LAT/LONGS AND ALTITUDES

W105A	SFC to FL500
W105B	SFC to but not including FL180
W105C	SFC to FL500
W105D	SFC to but not including 15,000 feet MSL
W105E	15,000 feet MSL to FL500

Sub Operation Areas A/B/C/D/E/F/G SFC to FL500

Point	Latitude/Longitude	Point	Latitude/Longitude
A	41 06 52/70 22 51	R	40 04 20/72 29 58
B	41 05 26/70 19 47	S	40 11 55/72 46 53
C	41 04 35/70 16 00	T	40 34 00/72 19 58
D	41 03 43/70 14 10	U	40 38 00/71 59 58
E	41 03 21/70 13 01	V	40 44 00/71 59 58
F	41 02 32/70 09 24	W	40 36 00/71 05 00
G	41 02 29/70 05 12	X	40 52 15/71 26 00
H	41 02 34/70 01 26	Y	41 02 25/70 42 00
I	41 02 38/70 00 15	Z	40 30 00/71 26 00
J	41 02 30/70 00 00	AA	40 40 00/70 42 00
K	40 53 00/69 43 00	AB	40 49 45/69 58 00
L	40 39 50/69 23 28	AC	39 49 06/69 58 00
M	40 26 46/69 06 23	AD	39 44 15/70 42 00
N	39 58 00/68 29 50	AE	39 39 33/71 26 00
O	39 46 00/70 29 00		
P	39 40 45/71 14 58		
Q	39 38 42/71 33 46		

ATTACHMENT NO. 13
SUA/ATCAA COMPUTER FIXES

All aircrews shall file the delay in the SUA/ATCAA in which the operation is conducted. If the operation is conducted in more than one SUA/ATCAA, then the delay shall be filed in the SUA/ATCAA in which they exit. The SUA/ATCAAs listed in Boston Centers data base are stored as follows:

MOAs

FALCON	=	FALCN	SYRACUSE 1	=	SYR1
SYRACUSE 2	=	SYR2	SYRACUSE 3	=	SYR3
SYRACUSE 4	=	SYR4	DRUM 1	=	DRUM1
DRUM 2	=	DRUM2	CONDOR	=	CONDR
YANKEE	=	YANKE			

ATCAAs

MAC 12	=	MAC12	MAC 13	=	MAC13
LASER	=	LASER	LASER North	=	LASRN
LASER West	=	LASRW	LASER South	=	LASRS
LASER East	=	LASRE	AKS	=	AKS
AKS 1	=	AKS1	AKS 2	=	AKS2
AKS 3	=	AKS3	AKS 4	=	AKS4
AKS 5	=	AKS5	MOT Area	=	MOT
MOT A	=	MOTA	MOT B	=	MOTB
MOT C	=	MOTC	MOT D	=	MOTD
SCOTY	=	SCOTY	SCOTY A	=	SCTYA
SCOTY B	=	SCTYB	SCOTY C	=	SCTYC

RESTRICTED AREAS

R5201	=	R5201	R5206	=	R5206
R5203	=	R5203			

WARNING AREAS

W102 H&L	=	W102	W103	=	W103
W104 A/B/C	=	W104	W105 A	=	W105A
W105 C	=	W105C	W105 C	=	W105C
W105 D	=	W105D	W105 E	=	W105E
W106 A/B/C	=	W106	W107	=	W107
W108	=	W108	W386 A	=	W386A
W386 B	=	W386B	W506	=	W506

SUB OPERATION AREAS WITHIN WARNING AREA W105

AIR OP A = AIRA	AIR OP B = AIRB	AIR OP C = AIRC	AIR OP D = AIRD
AIR OP E = AIRE	AIR OP F = AIRF	AIR OP G = AIRG	

BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

ATTACHMENT NO. 14
COMMON REFERENCE POINTS

FIX	LAT/LONG	FIX	LAT/LONG
ACK	41°16'55"/070°01'36"	ALB	42°44'50"/073°48'11"
ART	43°57'07"/076°03'53"	BDL	41°56'27"/072°41'19"
BGR	44°50'31"/068°52'26"	BML	44°38'01"/071°11'10"
BOS	42°21'27"/070°59'22"	BTV	44°23'50"/073°10'58"
CON	43°13'11"/071°34'32"	ENE	43°25'32"/070°36'49"
FMH	41°39'35"/070°30'50"	GFL	43°20'30"/073°36'43"
GSS	43°13'55"/075°24'41"	HTO	40°55'08"/072°19'00"
LFV	42°01'02"/070°02'14"	MLT	45°35'12"/068°30'56"
MSS	44°54'52"/074°43'22"	MVY	41°23'46"/070°36'46"
NHZ	43°54'09"/069°56'43"	PLB	44°41'06"/073°31'22"
PSM	43°05'04"/070°49'55"	PVD	41°43'28"/071°25'47"
SLK	44°23'04"/074°12'16"	SYR	43°09'38"/076°12'16"

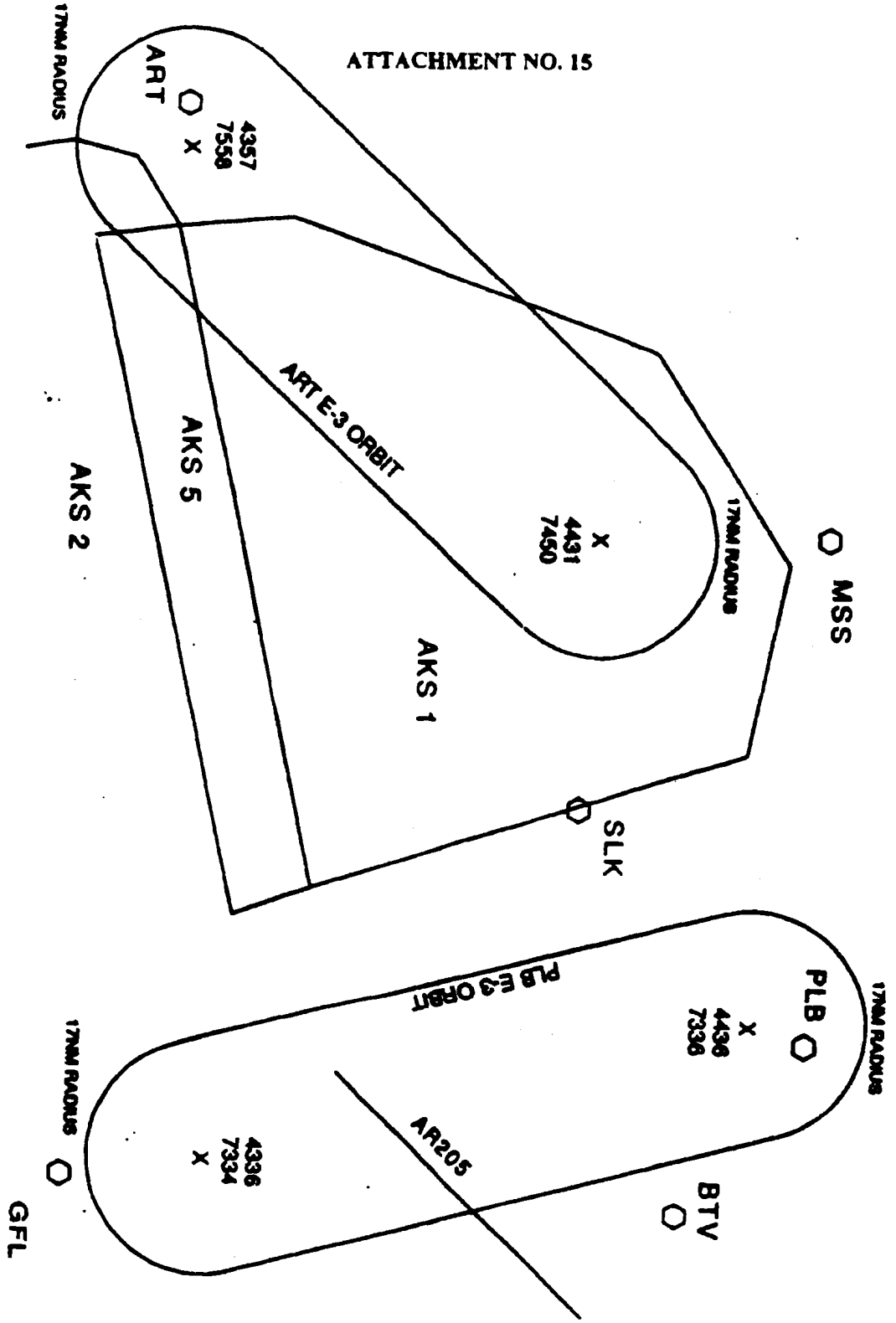
SUA/ATCAA SCHEDULING AGENCIES

SCHEDULER & LOCATION	AIRSPACE	NUMBER	CONTROLLING AGENCY
NE ADS @ Rome, NY	AKS 1/2/3/4/5(AR609) LASER E/W/N/S(AR631) MAC 12/13 MOT A/B(AR608) FALCON 1/3 W102 H(AR616A&B) CONDOR 1/2	DSN 587-6784	Boston ARTCC
305th AMW Mcguire AFB, NJ	SCOTY B(AR204/205/212)	DSN 440-6487 440-6488	Boston ARTCC
103rd FW @ Bradley Field, CT (Closed every other Monday)	YANKEE 1/2	DSN 636-8356 636-8357	Boston ARTCC
174 FW @ Syracuse, NY	SYR 1/2/3/4 DRUM 1/2	DSN 587-9214 587-9217	Wheeler Sack Approach Control
FACSFAC VACAPES @ Oceana, Virginia Beach, VA	W105 A/B/C/D/E SUB OP AREA A/B/ C/D/E/F/G	DSN 433-1218	Boston ARTCC

BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997.

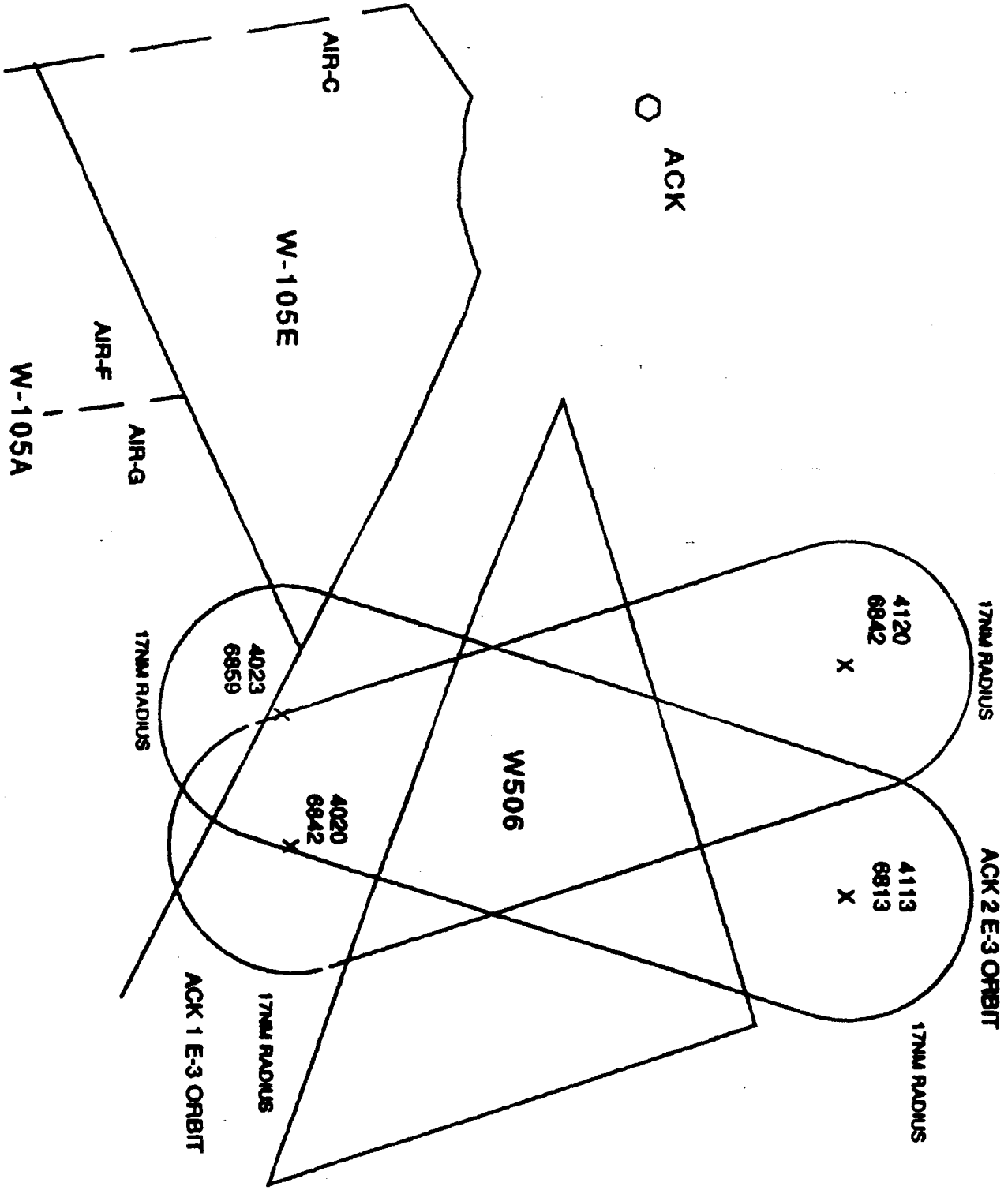
ATTACHMENT NO. 15



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997

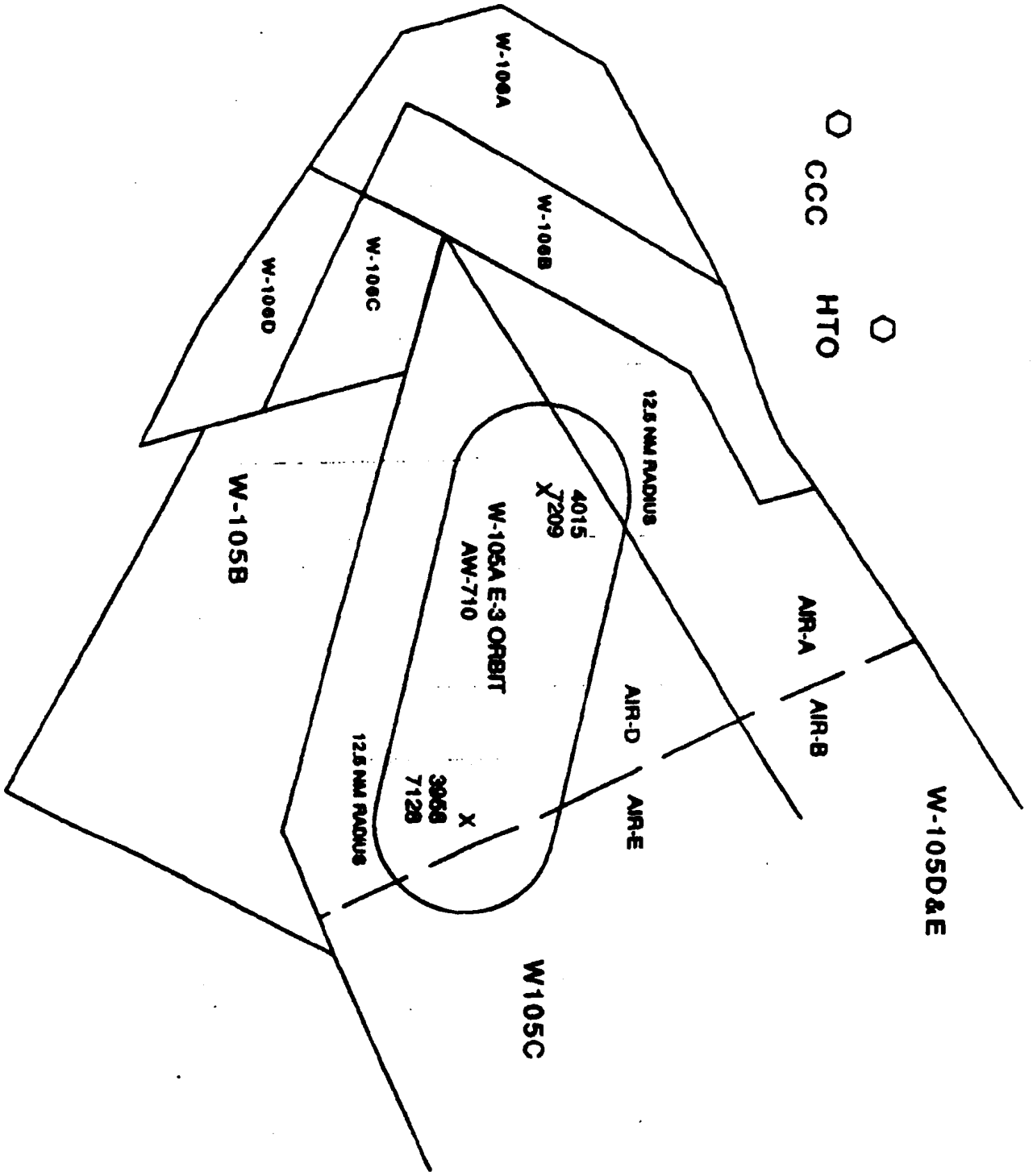
ATTACHMENT NO. 17



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

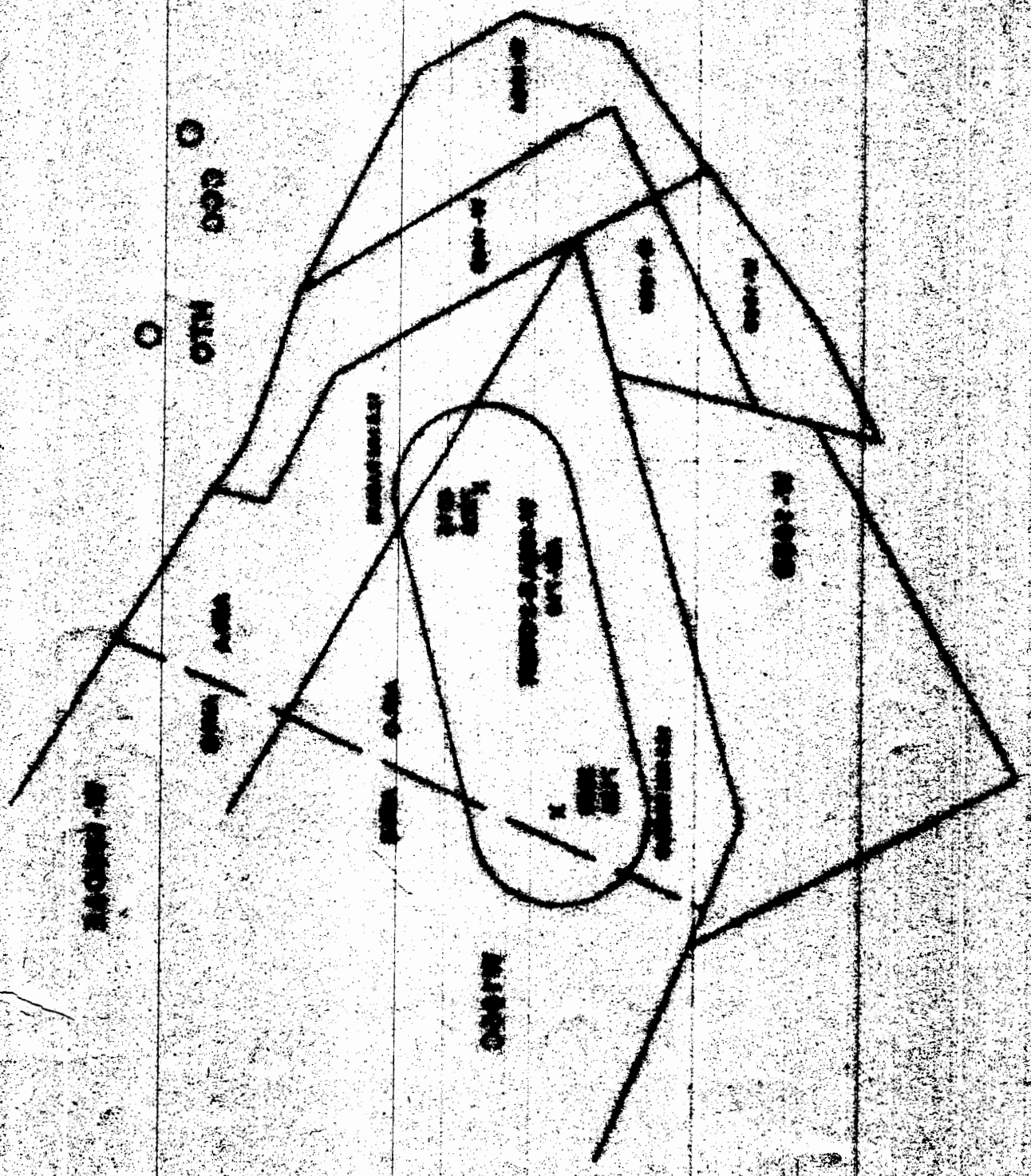
MAY 22, 1997

ATTACHMENT NO. 18



BOSTON ARTCC/NEADS/552ND ACW/
101ST ACS/102ND ACS/103RD ACS/
174TH FW/103RD FW/305TH AMW

MAY 22, 1997



REAL PROPERTY CODES FOR BRAC MEETINGS

FAC NBR = the assigned number to identify that particular facility.

IN = the Air Force real estate land interest associated with the assigned facility. "1" = USGov fee-owned land. "7" = USAF leased land.

TC = type of construction of the assigned facility. For pavements "4" concrete and "5" bituminous asphalt.

CD = condition code which could be "1" through "6". "1" means usable class a. "2" means usable class b. "3" force use. "4" means sterile no utilities. "5" means committed to Congress no further improvements may be applied. "6" means disposal approved.

CD IN = command code for the ANG this is "54". "69" is Coast Guard. "52" is Regular Army. "67" is Army National Guard.

CC = facility type. "A" is a single purpose facility. "B" is a multi purpose facility. "D" is a function within a multi purpose facility – must have two or more "D" items for a "B" facility. "E" is for pavements, utilities, and other non-buildings. "X" is for plants and systems within "A" and "B" facilities.

TOTAL: indicates only those figures from "A", "D" and "E" facilities. If there is a "B" facility on your report that figure is not included in the bottom line.

REAL PROPERTY CODES FOR BRAC MEETINGS

Hangar #111 – Single purpose facility.
Constructed in 2002 on USGov fee-owned land.
6840 S.F.
Provides shelter for one aircraft.

Hangar #112 – Single purpose facility.
Constructed in 2002 on USGov fee-owned land.
6840 S.F.
Provides shelter for one aircraft.

Hangar #113 – Single purpose facility
Constructed in 2002 on USGov fee-owned land.
6840 S.F.
Provides shelter for one aircraft.

Hangar #114 – Single purpose facility.
Constructed in 2002 on USGov fee-owned land
6840 S.F.
Provides shelter for one aircraft.

Facility #124 – Multi-use facility.
Constructed in 1955 on USGov fee-owned land.
34,849 total S.F.
With some minor modifications to access hangar area there is approximately 19,815 S.F. for up to four fighter aircraft.

Facility #128 – Single purpose facility.
Constructed in 1955 on USGov fee-owned land.
42,090 total S.F.
Hangar area available for up to four fighter aircraft with 19,809 S.F.

REAL PROPERTY CODES FOR BRAC MEETINGS

Real property records indicate current user is MA ArNG.

Facility #158 – Multi-use facility.
Constructed in 1956 on USGov fee-owned land.
149,498 total S.F.
There are two areas on the hangar floor that can be utilized for aircraft. The main hangar area for up to six aircraft with 23,453 S.F. The secondary area for up to three aircraft with 16,223 S.F.

Hangar 175 – Multi-use facility.
Constructed in 1953 on USAF leased land.
20,598 S.F.
With four aircraft cells for hardened shelter of one aircraft in each cell at 4052 S.F. each.

Hangar #192 – Multi-use facility.
Constructed in 1959 on USGov fee-owned land.
16,1652 S.F.
Hangar area provides space for three aircraft.

Hangar #196 – Multi-use facility.
Constructed in 1959 on USGov fee-owned land.
16,932 S.F.
Hangar area provides space for two aircraft.

Pad #6165 – Single purpose facility
Constructed in 1985 on USGov fee-owned land.
1081 S.F.
This is an engine test pad with a suppression system. The housing unit can hold one aircraft.

REAL PROPERTY CODES FOR BRAC MEETINGS

Apron #6139 – Aircraft Parking Apron
Constructed in 1943 on USGov fee-owned land
136,111 S.Y.
Provides parking space for several medium sized aircraft

Apron #6140 – Aircraft Parking Apron
Constructed in 1943 on both USAF leased land and USGov fee-owned land.
232,384 S.Y.
Provides space for several parking configurations of aircraft

Apron #6142 – Aircraft Parking Apron
Constructed in 1943 on USAF leased land.
128,300 S.Y.
Provides space for several aircraft.

In Fac Nbr's 'A' and over = 100,000 sqft, Land Cost Basis -- Expense Improvement is Not Included in Cost Basis.

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **113321** Description: **APRON**

Fac Nbr	NCD	CD IN	C	ABH DRD	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
06130	142	54	E		0			5600	SY			0	0	0	0	1987
06139	152	54	E		0			136111	SY			0	0	839968	0	1943
06140	142	54	E		0			232384	SY			0	0	1781275	0	1943
06142	743	54	E					128300	SY			0	0	679360	0	1943
06144	743	54	E		47373			66733	SY			0	0	293547	0	1943
06146	144	54	E		31667			31667	SY			0	0	216326	0	1960
06148	144	54	E		17988			17988	SY			0	0	102943	0	1943
66140	142	69	E		0			26270	SY					2286539	0	1955
Total:					97028			645053						6199958	0	
Installation Total						0 SF		645053 SY		0 AC				6199958	0	

Im... ...s '.' ... '.' and Cost ... 100,000 will not show Cost Basis -- Expense Improvement is Not Included in Cost Basis.

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **116665** Description: **PAD,PWR CHK W/SPR**

Fac Nbr	ITC NCD	CD IN	C	ABH DRD	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
06165	142	54	E		0			2522	SY			0	0	359992	0	1985
Total:					0			2522						359992	0	
	Installation Total					0 SF		2522 SY		0 AC				359992	0	

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **219943** Description: **BE PAV GRND FCLTY**

Fac Nbr	ITC NCD	CD IN	C C	ABH DRD	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
00124	1P2	54	B					35712	SF			0	0	807426	0	1955
00124	1P2	54	D					19815	SF			0	0	0	0	1955
Total:								19815		0				807426	0	
	Installation Total					19815 SF		0	SY		0 AC			807426	0	

Report 'A' & 'X' and Cost < 100,000 will not show Cost Basis -- Expense Improvement is NOT included in Cost Basis.

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **141181** Description: **ACFT SHLTR**

Fac Nbr	ITC NCD	CD IN	C DRD	ABH	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
00175	7P3	54	B		0			20598	SF	4	EA	0	0	1056545	0	1953
00175	7P3	54	D		0			17005	SF	4	EA	0	0	0	0	1953
Total:					0			17005		4				1056545	0	
Installation Total						17005 SF		0	SY		0 AC			1056545	0	

Note: 'A' = 'N' and Cost < 100,000 will NOT show Cost Basis -- Expense Improvement is NOT included in Cost Basis.

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **141459** Description: **READINESS, CRW**

Fac Nbr	ITC NCD	CD IN	C	AEH DRD	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
00175	7P3	54	D		0			3593	SF	4	PN	0	0	0	0	1953
Total:					0			3593		4				0	0	
	Installation Total					3593 SF		0 SY			0 AC			0	0	

Installation Unit Cost Limit = 100,000 will not show Cost Basis -- Extended Improvement is Not Included in Cost Basis.

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **141183** Description: **HG, ALERT**

Fac Nbr	ITC NCD	CD IN	C	ABH DRD	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
00111	1P1	54	A		0			6840	SF					655197	0	2002
00112	1P1	54	A		0			6840	SF					655197	0	2002
00113	1P1	54	A		0			6840	SF					655197	0	2002
00114	1P1	54	A		0			6840	SF					656535	0	2002
Total:					0			27360						2622126	0	
Installation Total						27360 SF		0	SY	0	AC			2622126	0	

Report 'I' & 'A' and Cost > 200,000 will not show Cost basis -- Expense Improvement is Not included in Cost Basis.

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **211111** Description: **HG MAINT**

Fac Nbr	ITC NCD	CD IN	C	ABH DRD	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
00158	1P3	54	B		0			149498	SF				0	8123107	0	1956
00158	1P3	54	D		0			23453	SF				0	0	0	1956
63170	1P2	69	A		0			47160	SF					8861082	0	1992
Total:					0			70613		0				16984189	0	
Installation Total						70613	SF	0	SY		0	AC		16984189	0	

(n/a: '.' = '.' and cost < 100,000 will not show Cost Basis -- Expense Improvement is NOT included in Cost Basis.

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **211179** Description: **MAINT DOCK, FL SYS**

Fac Nbr	IPC NCD	CD IN	C DRD	A&H C	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
00196	1P3	54	D		0			9417	SF	1	EA	0		0	0	1959
00196	1P3	54	B		0			17533	SF	1	EA	0	0	777336	0	1959
Total:					0			9417		1				777336	0	
Installation Total						9417 SF		0 SY			0 AC			777336	0	

In ... 'I' ... 'J' and Cost ... 100,000 will NOT show Cost Basis -- Expense Improvement is NOT included in Cost Basis.

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **217713** Description: **ECM POD SHP & STOR**

Fac	NDI	ITC NCD	CD IN	C	ABH DRD	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
00158	**1P3**	**54**		**D**		**0**			**16223**	**SF**				**0**	**0**	**0**	**1956**
Total:						**0**			**16223**						**0**	**0**	
		Installation Total					**16223 SF**		**0 SY**			**0 AC**			**0**	**0**	

Inv Cat '1' = '1' and Cost > 100,000 will NOT show Cost Basis -- Expense Improvement is NOT included in Cost Basis.

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **218712** Description: **SHP A/SE STOR FCLT**

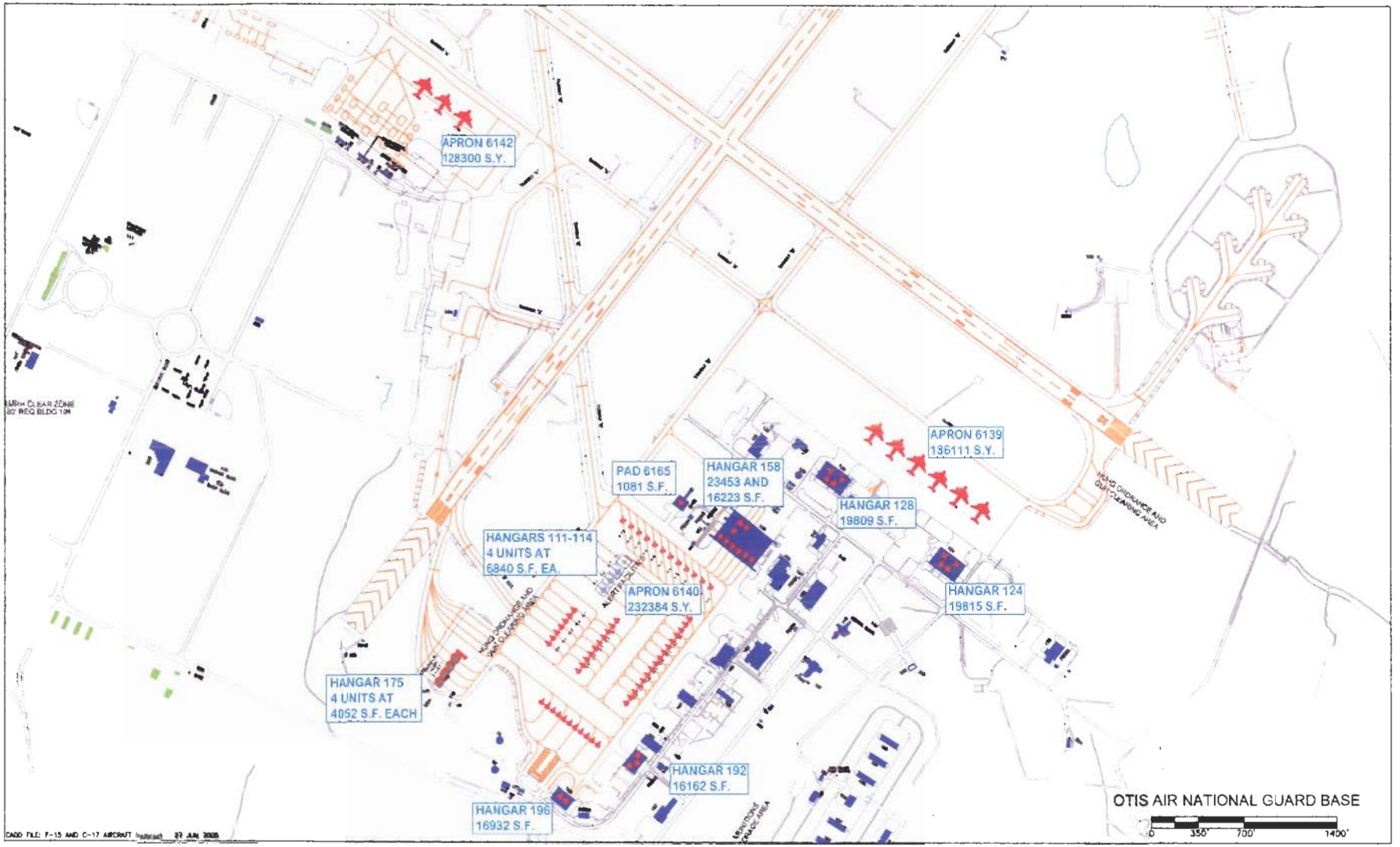
Fac Nbr	ITC NCD	CD IN	C	ABH DRD	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
00190	1P2	54	A					337	SF			0	0	0	0	1959
00191	1P3	54	A		0			8640	SF			0	0	291953	0	1963
00192	1P2	54	D		0			12598	SF			0		0	0	1959
00192	1P2	54	B		0			18271	SF			0	0	477810	0	1959
Total:					0			21575		0				769763	0	
	Installation Total					21575 SF		0 SY			0 AC			769763	0	

Installations 'A' & 'D' and Cost < $10,000 will NOT show Cost Basis -- Expense Improvement is NOT included in Cost Basis.

Installation: **OTIS ANG BASE** Instl: **SPBN** CMD: **ANG**

Category: **610811** Description: **ADMIN OFC, NON-AF**

Fac Nbr	ITC NCD	CD IN	C	ABH DRD	Vac Area	Out NLS	Out LS	Total Area	UM	Area Othr	UM	Rent Paid	Rent Rec	Cost Basis	Est Value	Year Comp
00102	7P3	67	A		0			16299	SF			0		140689	0	1963
00110	7P2	67	A		0			2304	SF					0	0	1941
00128	1P3	67	A		0			35785	SF			0	0	784999	0	1955
00158	1P3	74	D		0			813	SF					0	0	1956
00289	7P3	71	A		0			1657	SF			0	0	0	0	1941
00304	7S1	81	A		0			384	SF			0	0	0	0	1990
00306	7S2	81	A		0			3050	SF			0	0	0	0	1941
00650	1P2	7A	A					1524	SF			0	0	0	0	1964
00980	7P2	72	A					739	SF			0	0	0	0	1958
01146	7P2	71	A					1722	SF			0	0	0	0	1941
02410	7P2	7A	A					3130	SF			0	0	114516	0	1961
03137	7P2	4C	A					2000	SF			0	0	0	0	1957
63163	1P2	69	A		0			1920	SF					223642	0	1955
63164	1P2	69	A		0			1920	SF					233472	0	1955
70102	7S3	67	A		0			12304	SF					134023	0	1941
73133	7S2	67	A		0			2266	SF					0	0	1941
73134	7S2	67	A		0			2266	SF					0	0	1941
Total:					0			90083						1631341	0	
Installation Total						90083 SF		0 SY		0 AC				1631341	0	


APRON 6142
128300 S.Y.
APRON 6139
186111 S.Y.
PAD 6165
1081 S.F.
HANGAR 158
23453 AND
16223 S.F.
HANGAR 128
19809 S.F.
HANGARS 111-114
4 UNITS AT
6840 S.F. EA.
APRON 6140
232384 S.Y.
HANGAR 124
19815 S.F.
HANGAR 175
4 UNITS AT
4052 S.F. EACH
HANGAR 192
16162 S.F.
HANGAR 196
16932 S.F.
OTIS AIR NATIONAL GUARD BASE
0
350'
700'
1400'

Methodology

MCI Flawed Methodology Analysis

20 July 2005

OSD Formula 1245: Proximity to Airspace Supporting Mission (22.08% of total MCI). In general, there are several aspects to this question/algorithm that are flawed:

1. The OSD range database was inaccurate/incomplete. Large amounts of military training airspaces were not evaluated in the MCI.

2. Quantity of airspaces within 150NM severely skews results.

3. Airspace saturation (density/scheduling) was not used as a metric

4. Airspaces that are too small for aircraft operation are included in analysis with same exact weighting for 11 of 12 attributes (85% of score).

5. Inconsistent sectoring of airspace (affects quantity of airspaces and significantly effects final score). Segmented airspaces artificially boost number of airspaces since airspaces are scored in an additive manner for each sub-category.

6. Operating hours were not tied to proximity (i.e. only had to be open 1 hr to get full credit for the proximity). Operating Hours are not meaningful for this equation as 1 hr is equivalent to 24 hrs

7. Airspace Volume (15%) Individual airspace volumes are not scored by proximity, only by total volume

Overview of 1245 algorithm. Before discussing the flaws in the algorithm, it is important to fully understand the algorithm. Following is a brief synopsis of the algorithm for OSD question 1245 developed after discussions with Mr. Dave Wendlekin of SAF/IEB and *Department of the Air Force Analysis and Recommendations BRAC 2005, Volume V, Part 2 of 2)*:

The algorithm lays out weights (percentages) for each of the 12 airspace attributes (the term sub-category will be used interchangeably). These come from four separate data files; ASOPS 1245 (includes the distance to airspace information), Range Attribute 1274 and Range Attribute 1266 (includes the attribute data), and the total volume from 1277. The airspace designator must match across all three data files. All airspaces over 150 NM are thrown out.

The Airspace Volume (15%) is the combined volume for all airspaces used within 150 Nm (Range Attribute 1277). We cannot determine OSD's source documentation for individual airspaces. The total volume for each base is compared to all other bases. The highest base gets 100 points, the lowest non-zero base gets 10 points, all other bases pro-

rated on a 10 to 100 scale. This number is subsequently multiplied by the relative attribute weighting (15%).

The next attribute is Operating Hours (15%). All airspaces that are open for 1 hour are given a proximity score based on a formula; 100 points for 50NM or less, 10 points for 150 NM, and prorated for anything in between. For example, if a range was open at least 1 hour and was 100 NM miles away, a proximity score of 55 points is scored for that airspace, for that attribute. Next, all Operating Hour proximity scores for each airspace for a particular base are summed. The quantity of individual airspaces drives the amount of points awarded. Once this is done, the base with the highest point total in this particulate attribute (operating hours) received 100 points, the base with the lowest non-zero total received 10, all others prorated from 10 to 100. Lastly, the operating hour proximity score is weighted by the listed percentage, in this case 15%.

All the remaining 10 attributes are yes/no answers and are scored the same. If a yes is listed for a particular airspace attribute, the proximity score for that particular airspace attribute is entered. The scores for a particular attribute for each airspace are added and the base with the highest total in that sub-category receives 100 points, the base with the lowest non-zero receives 10, all others prorated in between. Finally, the base score for this attribute is multiplied by the weight. This is repeated for all 10 airspace attributes.

1245 Flaws: Now that the methodology for the algorithm is understood, the specific problems can be discussed in more detail.

1. ***The OSD range database was inaccurate/incomplete. Large amounts of military training airspaces were not evaluated in the MCI.***

All airspaces used in the MCI calculations were determined at the OSD level. The listing was inaccurate and incomplete. OSD's database does not account for local base FAA letters of agreement. The GAO noted the lack of a sufficient database in their report to congress on ranges:

> "OSD's training range inventory does not yet contain sufficient information to use as a baseline for developing the comprehensive training range plan required by section 366. As a result, OSD's training range report does not lay out a comprehensive plan to address training constraints caused by limitations on the use of military lands, marine areas, and air space that are available in the United States and overseas for training. OSD's training range inventory does not fully identify available training resources, specific capacities and capabilities, and existing training constraints caused by encroachment or other factors to serve as the baseline for the comprehensive training range plan." *June 2004, DOD Report on Training Ranges, GAO-04-608*

The three databases reveal numerous inconsistencies in both listed ranges and the individual attribute data for the listed ranges. Specifically for Otis, there were 10

airspaces within 150 NM that were listed on datafile ASOPS 1245 but not on Range Attribute 1266 and 1274 datafiles, therefore not scored.
Excerpt from data file (01_asops_01245_as_distas.xls)

27 AKS 1 ATCAA	209
27 AKS 2 ATCAA	191
27 AKS 3 ATCAA	265
27 AKS 4 ATCAA	280
27 AKS 5 ATCAA	203
27 CHESSIE A ATCAA	276
27 KINZUA CHARLIE ATCAA	271
27 LASER EAST ATCAA	119
27 LASER NORTH ATCAA	123
27 LASER SOUTH ATCAA	97
27 LASER WEST ATCAA	141
27 MAC 12 ATCAA	136
27 MAC 13 ATCAA	130
27 MISTY 2 ATCAA	295
27 MISTY 3 ATCAA	292
27 MOT A ATCAA	46
27 MOT B ATCAA	48
27 MOT C ATCAA	61
27 MOT D ATCAA	53
27 SCOTY A ATCAA	175
27 SCOTY B ATCAA	189
27 SCOTY C ATCAA	161

The missing airspaces for Otis are ATCAAs. Further analysis of the databases reveals 286 individual ATCAAs listed on the data file *ASOPS 1245* that could have been scored. Of those 286 ATCAAs, only 91 show up on the attribute data files (Range Attribute 1266 and 1274). Recall that to receive credit for a range, the range must show up on all three datafiles. Therefore only 91 of the 286 ATCAAs are scored. This translates into 109 bases receiving varying amount of credit for ATCAAs and 45 bases (including Otis) not receiving credit for ANY ATCAAs.

There were also key missing data points within the airspace attribute data files. In particular, the following highlighted areas were listed incorrectly in the data files and are updated to reflect correct values.

		From Datafile 1274				From Datafile 1266								From Datafile 1245
Org	1 Airspace Designator (Text)	2 Airspace Volume: at least 2,100NM cubed; altitude block >=20,000' (Yes/No)	3 Flare (Yes/No)	4 Chaff (Yes/No)	5 Live Ordnance (Yes/No)	2 Operating Hours (#)	3 Scoreable range complexes/target array (Yes/No)	4 Air to Ground Weapons Delivery (Yes/No)	5 Low Angle Strafe Authorized (Yes/No)	6 IMC weapons release (Yes/No)	7 Electronic Combat (Yes/No)	8 Laser Use Authorized (Yes/No)	9 Lights-Out Capable (Yes/No)	2 Distance to Airspace/Route (NM)
27	R4101	No	N/A	N/A	No	12	No	No	No	No	N/A	No	N/A	2
27	R4105A	No	N/A	N/A	No	16	No	No	No	No	No	No	No	24
27	R4105B	No	N/A	N/A	No	16	No	No	No	No	No	No	No	24
27	W105A	Yes	Yes	Yes	No	24	No	No	No	No	No	No	Yes	33
27	W104A	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	50
27	W104B	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	62
27	W506	Yes	Yes	Yes	No	24	No	No	No	No	No	No	Yes	62
27	W103	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	64
27	R4102A	No	N/A	N/A	No	14	No	No	No	No	N/A	No	N/A	70
27	R4102B	No	N/A	N/A	No	14	No	No	No	No	N/A	No	N/A	70
27	W106B	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	87
27	W102H	Yes	Yes	Yes	No	24	No	No	No	No	No	No	N/A	97
27	W102L	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	97
27	W106A	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	113
27	W105B	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	123
27	YANKEE 1 MOA	No	Yes	No	No	12	No	No	No	No	No	No	Yes	125
27	YANKEE 2 MOA	No	Yes	No	No	12	No	No	No	No	No	No	Yes	126
27	W106C	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	130
27	W106D	No	Yes	Yes	No	24	No	No	No	No	No	No	Yes	143
27	LASER NORTH ATCAA	Yes	Yes	No	No	14	No	No	No	No	No	No	Yes	123
27	LASER SOUTH ATCAA	Yes	Yes	No	No	14	No	No	No	No	No	No	Yes	97
27	LASER EAST ATCAA	Yes	Yes	No	No	14	No	No	No	No	No	No	Yes	119
27	LASER WEST ATCAA	Yes	Yes	No	No	14	No	No	No	No	No	No	Yes	141
27	MOT A ATCAA	Yes	Yes	Yes	No	24	No	No	No	No	Yes	No	Yes	46
27	MOT B ATCAA	Yes	Yes	Yes	No	24	No	No	No	No	Yes	No	Yes	48
27	MOT C ATCAA	Yes	Yes	Yes	No	24	No	No	No	No	Yes	No	Yes	61

2. ***Quantity of airspaces within 150NM severely skews results.***

Since the airspace attributes are additive for a particular base, the more airspaces a base is near, the greater number of points will be accumulated. For example, a base within 50NM of 20 airspaces would get four times more credit than a base within 50NM of 5 airspaces. This favors bases located in a heavily populated military training area, and is not indicative of the quality of training available. Langley AFB is within 150NM of 85 ranges and their score was 20.58 out of 22.08 or 93%. Otis had 19 ranges within 150NM and scored 3.83 out of 22.08 or 17.3%. The percent differences in score are very similar to the percent difference in the number of ranges. In reality, due to the number of military installations training in that geographic area, air traffic congestion and range saturation are very real issues that hinder training. Otis, on other hand, has unlimited access to their airspaces. The quality and expansiveness of a single large airspace was scored the same as small postage sized ranges.

3. ***Airspace saturation (density/scheduling) was not used as a metric.***

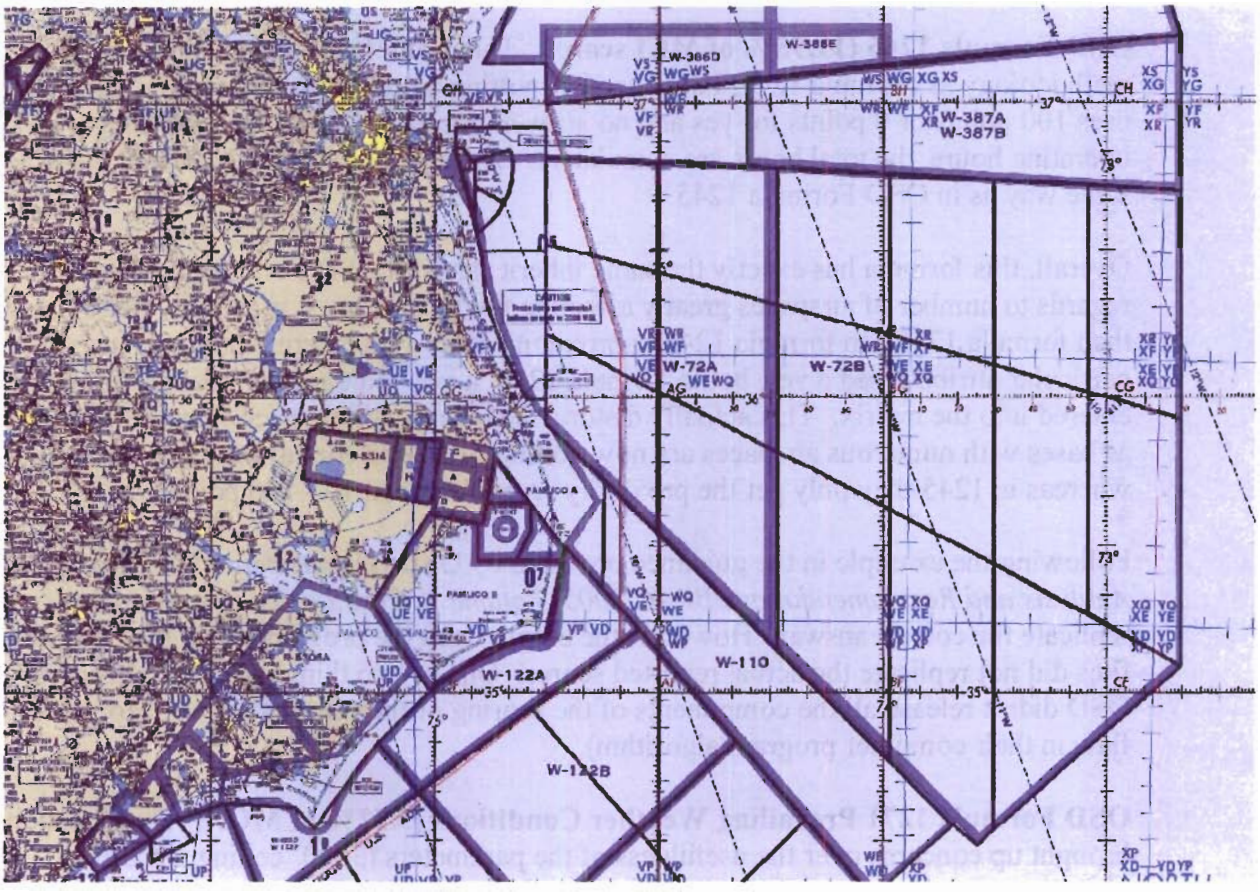
As previously stated, there is no allowance for airspace saturation in the calculations. These are important factors in determining the training capabilities of a base yet there is no mention of this attribute in the scoring. Other Guard units have raised this issue during the regional hearings.

4. ***Airspaces that are too small for aircraft operation are included in analysis with same exact weighting for 11 of 12 attributes (85% of score).***

All airspaces, regardless of size, were treated equally for 11 of the 12 subcategories. Airspace volume was a cumulative value by base (i.e. one number) and couldn't be broken down. For example, Langley received separate credit for Camp Lejeune ranges R5306A, R5306C, and R5306D, which ranged from 4 NM^2 o 24 NM^2. These areas are too small to operate an F-15 or F-22, yet they received maximum credit across all subcategories. This severely overstates the value of their nearby ranges and their score reflects this.

5. ***Inconsistent sectoring of airspace (affects quantity of airspaces and significantly effects final score). Segmented airspaces artificially boost number of airspaces since airspaces are scored in an additive manner for each sub-category.***

There are numerous examples of ranges being divided into sectors with each sector representing it's own airspace. For example, W72 (in the following picture) is broken down into 16 separate sectors, each sector showing up as an individual airspace. Since the weighting is equal for every airspace, this artificially distorts the score. Subcategory scores were increased 16 fold in this case. For example, if the airspace was Lights Out Capable, it should have accumulated 100 points. But being sectored, it now scores 1,600 points for the same airspace. In Langley's case, this happens often. In fact, 13 airspaces turn into 61 airspaces due to sectoring. Since all airspaces carry the same weight, the artificial quantity drives Langley to a 93% score in formula 1245. Simply, more airspaces equates to a higher score. It is interesting to note that OSD's own report (366 Report to Congress, Feb 04) lists W72 as 3 airspaces, yet it is credited with 16 in the MCI database.



W72 Sectored Airspaces

6. ***Operating hours not tied to proximity (i.e. only had to be open 1 hr to get full credit for the proximity). Operating Hours are not meaningful for this equation as 1 hr is equivalent to 24 hrs***

This is worth 15% of total score in Formula 1245, yet an airspace only had to be open for 1 hr to receive full proximity credit. If two airspaces were the same distance from an installation, with one being opened 1 hour and the other for 24 hours, they would received the same exact credit. This turns 15% of the score into a meaningless metric. Again, the quantity of airspaces is extremely important and a bases score would be artificially inflated regardless of actual operating hours.

7. ***Airspace Volume (15%) Individual airspace volumes are not scored by proximity, only by total volume***

The Airspace Volume for this formula comes from data file 1277. It lists the total cumulative volume of airspace for each installation. Since this is not broken down into individual volumes, they can't be scored for proximity. For example, two airspaces with the same volume, one being 150 NM away and the other 50NM away would have the exact same effect on the final score.

OSD Formula 1266 (11.95% of MCI score): This formula follows the exact same methodology as Formula 1245, but instead of putting a proximity score in the matrix, it uses 100 points or 0 points for yes and no answers respectively for each subcategory. For operating hours, the total hours are cumulative. The airspace volume is treated the exact same way as in OSD Formula 1245.

Overall, this formula has exactly the same inherit flaws as OSD Formula 1245. With regards to number of airspaces greatly affecting the final score, it is actually more flawed than formula 1245. In formula 1245, a proximity score was entered into the matrix if a particular attribute had a yes, but in formula 1266, a yes value results in a 100 being entered into the matrix. This actually distorts the quantity of airspace flaw even further as bases with numerous airspaces are now getting full credit for each 'yes' in an attribute, whereas in 1245 they only get the proximity score (between 10 - 100 points).

Following the example in the guidance provided by OSD (*Department of the Air Force Analysis and Recommendations BRAC 2005, Volume V, Part 2 of 2),* our program would replicate the correct answer. However, the output from the program using the OSD data files did not replicate the actual reported scores. One of two things is true in this case; OSD didn't release all the components of the scoring or their scores are erroneous (i.e. flaw in their computer program/algorithm).

OSD Formula 1271 Prevailing Weather Conditions (5.52% of MCI): This question brought up concerns over the usefulness of the parameters (3000' ceiling and 3 NM visibility), source documentation and the actual number of days for Otis that showed up in the data file 1271. We were listed as having 249 days a year matching those criteria. However, when we ran the numbers from the listed data source (AFCCC) using the same time period, our numbers were different. This prompted us to contact the AFCCC to validate or clear up the error. The following email correspondence points out that the AFCCC was not asked to run the information for the 3000', 3NM parameter. We are not sure who provided the data in this case.

-----Original Message-----
From: Murphy John D Col AF/XOO-W [mailto:johnd.murphy@pentagon.af.mil]
Sent: Friday, July 01, 2005 2:37 PM
To: LeFavor, James, Lt Col, 101 FS/CC, 4386
Cc: Falvey Robert LtCol AFCCC/DO
Subject: RE: Weather data request

Flav
Here's what was entered for Otis into BRAC process:

During Data Call 09, was asked for	<1000/3 (% of time)	and X-wind >or=15kts (% of time)
Otis	24.3	15.2

Another earlier data call asked for % of time <1500/3 during Day/Night

Otis	23.7/24.4

Was never asked for 3000/3 info. Complained entire time that questions weren't entirely sound meteorological questions but could never get to source. If you need 3000/3 data or more climatological data, Lt Col Falvey should be able to provide. Thanks

v/r
jdm

-----Original Message-----
From: LeFavor, James, Lt Col, 101 FS/CC, 4386
[mailto:james.lefavor@MAOTIS.ANG.AF.MIL]
Sent: Friday, July 01, 2005 12:53 PM
To: RSS dd - WSO BRAC Clearinghouse
Cc: Murphy John D Col AF/XOO-W; Falvey Robert LtCol AFCCC/DO; Schiavi, Anthony, E, Col, 102FW/CV, 4667
Subject: Weather data request

OSD Clearinghouse,
A request for data on OTIS ANGB climatology from AFCCC is pending your approval.

The specific request is for a Climatic Brief (time period: 1 Jan 1973 to 31 Dec 2003) identifying average annual number of days of ceilings less than 3000ft and/or visibility less than 3 miles.

Any questions, please contact me.

Jim "Flav" LeFavor, LTC, MAANG
Commander, 101 FS
DSN 557-4385

United States General Accounting Office

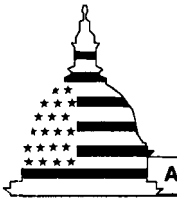
GAO

Report to Congressional Committees

June 2004

MILITARY TRAINING

DOD Report on Training Ranges Does Not Fully Address Congressional Reporting Requirements



G A O

Accountability * Integrity * Reliability

GAO-04-608

June 2004

GAO
Accountability · Integrity · Reliability

Highlights

Highlights of GAO-04-608, a report to congressional committees

MILITARY TRAINING

DOD Report on Training Ranges Does Not Fully Address Congressional Reporting Requirements

Why GAO Did This Study

Section 366 of the National Defense Authorization Act for Fiscal Year 2003 required the Secretary of Defense to develop a report outlining a comprehensive plan to address training constraints caused by limitations on the use of military lands, marine areas, and air space that are available in the United States and overseas for training. The foundation for that plan is an inventory identifying training resources, capacities and capabilities, and limitations. In response to section 366, this report discusses the extent to which (1) the Office of the Secretary of Defense's (OSD) training range inventory is sufficient for developing the comprehensive training range plan and (2) OSD's 2004 training range report meets other requirements mandated by section 366.

What GAO Recommends

GAO recommends that OSD develop an integrated training range database that identifies available training resources, capacities and capabilities, and training constraints caused by encroachment and other factors; and makes several recommendations to enhance DOD's responsiveness to the legislative requirements. DOD disagreed with GAO's findings and three of its four recommendations. After reviewing DOD's comments, GAO continues to believe its recommendations are still valid.

www.gao.gov/cgi-bin/getrpt?GAO-04-608.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Barry W. Holman at (202) 512-8412 or holmanb@gao.gov.

What GAO Found

OSD's training range inventory does not yet contain sufficient information to use as a baseline for developing the comprehensive training range plan required by section 366. As a result, OSD's training range report does not lay out a comprehensive plan to address training constraints caused by limitations on the use of military lands, marine areas, and air space that are available in the United States and overseas for training. First, OSD's training range inventory does not fully identify available training resources, specific capacities and capabilities, and existing training constraints caused by encroachment or other factors to serve as the baseline for the comprehensive training range plan. Second, OSD and the services' inventories are not integrated, readily available, or accessible by potential users so that commanders can schedule the best available resources to provide the required training. Third, OSD's training range report does not include a comprehensive plan with quantifiable goals or milestones for tracking planned actions to measure progress, or projected funding requirements needed to implement the plan. Instead, the report provides the current status of the four services' various sustainable range efforts in the United States, which if successful, overtime should provide a more complete picture of the magnitude and impact of constraints on training.

OSD's training range report does not fully address other requirements mandated by section 366. For example, the report does not:

- Fully assess current and future training range requirements.
- Fully evaluate the adequacy of current resources to meet current and future training range requirements in the United States and overseas.
- Identify recommendations for legislative or regulatory changes to address training constraints, even though the Department of Defense (DOD) submitted legislative changes for congressional consideration on April 6, 2004.
- Contain plans to improve readiness reporting.

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Abbreviations

DOD	Department of Defense
OSD	Office of the Secretary of Defense

GAO
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United States General Accounting Office
Washington, DC 20548

June 4, 2004

Congressional Committees

For some time, senior Department of Defense (DOD) and military service officials have reported that they face increasing difficulties in carrying out realistic training at military installations due to training constraints, such as those resulting from encroachment.[1] Title III, section 366 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003, dated December 2, 2002,[2] required that the Secretary of Defense develop a comprehensive plan for using existing authorities available to the Secretaries of Defense and the military services to address training constraints caused by limitations on the use of military lands, marine areas, and airspace that are available in the United States and overseas for training. As part of the preparation of the plan, section 366 required the Secretary of Defense to conduct an assessment of current and future training range[3] requirements and an evaluation of the adequacy of current DOD resources, including virtual and constructive assets, to meet current and future training range requirements. Section 366 further required the Secretary to submit the plan, the results of the assessment and evaluation, and any recommendations for legislative or regulatory changes to address training constraints in a report to the Congress at the same time the President submitted the budget for fiscal year 2004 and provide status reports annually between fiscal years 2005 and 2008 on implementation of the plan and any additional actions taken or to be taken. In addition, section 366 required the Secretary to develop and maintain an inventory that identifies all available operational training ranges, all training range capacities and capabilities, and any training constraints caused by limitations at each training range. We have previously reported on the need for an integrated and readily available or accessible comprehensive

[1] DOD defines "encroachment" as the cumulative result of any and all outside influences that inhibit normal training and testing. According to DOD, the eight encroachment factors are: endangered species habitat, unexploded ordinance and munitions constituents, competition for radio frequency spectrum, protected marine resources, competition for airspace, air pollution, noise pollution, and urban growth around military installations.

[2] P.L. 107-314, Title III, Section 366 (Dec. 2, 2002).

[3] We use the term "training range" to collectively refer to air ranges, live-fire ranges, ground maneuver ranges, sea ranges, and operating areas.

inventory of the services' training ranges, capacities, and capabilities so that commanders can schedule the best available resources to provide the required training.[4] Section 366 also required the Secretary of Defense to report to the Congress on the plans to improve the Global Status of Resources and Training System to reflect the readiness impact that training constraints caused by limitations on the use of military lands, marine areas, and airspace have on specific units of the military services. (See section 366 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 in app. I.)

Instead of issuing the first report along with the President's fiscal year 2004 budget submission in 2003, the Office of the Secretary of Defense (OSD) submitted to the Congress its *Implementation of the Department of Defense Training Range Comprehensive Plan* report on February 27, 2004. In an effort to obtain assistance from the military services in preparing this report, the Under Secretary of Defense for Personnel and Readiness, in a January 2003 memorandum, directed each of the military services to develop a single standalone report that could be consolidated to form OSD's overall report.[5] As such, OSD's report reflects the varying levels of detail provided by each service.

Section 366 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 also required that the Secretary of Defense provide us a copy of the annual training range report and that we must provide the Congress with our evaluation of these annual reports. This report discusses the extent to which (1) OSD's training range inventory contains sufficient information to use as a baseline for developing the comprehensive training range plan required by section 366, and (2) OSD's training range report meets other requirements mandated by section 366, such as an assessment of current and future training range requirements; an evaluation of the adequacy of current DOD resources, including virtual and constructive assets, to meet current and future training range requirements; any recommendations for legislative or regulatory changes

[4] U.S. General Accounting Office, *Military Training: DOD Lacks a Comprehensive Plan to Manage Encroachment on Training Ranges*, GAO-02-614 (Washington, D.C.: June 11, 2002).

[5] Department of Defense, Under Secretary of Defense for Personnel and Readiness, *Guidance for Complying with the Provisions of Section 366* (Washington, D.C.: Jan. 28, 2003).

to address training constraints; and plans to improve the readiness reporting system.

To identify the extent that OSD's training range inventory contains sufficient information to use as a baseline for developing the comprehensive training range plan required by section 366, we reviewed the inventory contained in the OSD training range report and the services' inventory inputs to assess whether the inventory identified training capabilities (e.g., types of training that can be conducted and available targets), capacities (e.g., size of range or amount of training that can be accommodated), and constraints caused by encroachment for each training range.[6] Also, we discussed the content of the inventories with knowledgeable OSD and service officials. To determine the extent to which OSD's training range report met other requirements mandated by section 366, we thoroughly reviewed the report for an assessment of current and future training range requirements; an evaluation of the adequacy of current DOD resources, including virtual and constructive assets, to meet current and future training range requirements; recommendations for legislative or regulatory changes to address training constraints; and plans to improve the readiness reporting system. In addition, we discussed the adequacy of OSD's report and the services' inputs with knowledgeable OSD and service officials and a representative of the contractor that prepared the report. Details about our scope and methodology appear at the end of this letter.

We conducted our work from December 2003 through April 2004 in accordance with generally accepted government auditing standards.

Results in Brief

OSD's training range inventory, which is a compilation of the individual services' inventories, does not contain sufficient information to use as a baseline for developing the comprehensive training range plan. As a result, OSD's report does not include a comprehensive plan to address training constraints caused by limitations on the use of military lands, marine areas, and airspace that are available in the United States and overseas for training—as required by section 366. While OSD's training range inventory lists the services' training ranges and capabilities as of November 2003 and the individual service input documents provide more descriptive examples

[6] We did not verify the completeness or accuracy of OSD's inventory or the services' inventory inputs.

of constraints on training than we have seen previously, they do not fully identify existing limitations on training. Also, these inventories are not integrated, readily available, or accessible by potential users so that commanders can schedule the best available resources to provide the required training. An integrated training range database that could be continuously updated and shared among the services at all command levels, regardless of service ownership, would make these inventories more useful to identify available training resources, specific capacities and capabilities, and training constraints caused by encroachment. Without an inventory that fully identifies available training resources, specific capacities and capabilities, and existing training constraints caused by encroachment, it is difficult to frame a meaningful plan to address such constraints. As a result, OSD's report does not contain a comprehensive plan to address training constraints on military training ranges caused by limitations on the use of training ranges, as required by section 366. Instead, the report provides the current status of the services' various sustainable range efforts, which if successful, overtime should provide a more complete picture of the magnitude and impact of constraints on training. Even so, OSD's report does not include quantifiable goals or milestones for tracking planned actions and measuring progress, or projected funding requirements. The absence of these elements is significant given the legislative requirement for OSD to report annually on its progress in implementing the plan.

OSD's report, which is a consolidation of information provided by the services, does not fully address several other requirements mandated by section 366. For example, the report does not:

- Fully assess current and future training range requirements. Instead, it mainly describes the services' processes to develop, document, and execute current training and training range requirements.

- Fully evaluate the adequacy of current DOD resources, including virtual and constructive assets, to meet current and future training range requirements. Instead, the report broadly describes the types of ranges the services need to meet their training requirements in the United States. It does not indicate whether those types of ranges exist; are in the needed quantity and location; and the degree to which encroachment or other factors, such as inadequate maintenance or modernization, impact the services' ability to train on those ranges, including whether the ranges have the instrumentation, target sets, or other infrastructure needed to meet current and future training range requirements.

- Identify recommendations for legislative or regulatory changes to address training constraints, even though DOD submitted legislative changes for congressional consideration on April 6, 2004.
- Contain plans to improve the readiness reporting system, called the Global Status of Resources and Training System. This reporting system was to capture the impact on readiness caused by training constraints.

To serve as the baseline for the comprehensive training range plan required by section 366, we are recommending that OSD and the military services jointly develop an integrated training range database that identifies available training resources, specific capacities and capabilities, and training constraints caused by encroachment and other factors, which could be continuously updated and shared among the services at all command levels, regardless of service ownership. To improve future reports, we recommend that OSD provide a more complete training range report to the Congress to fully address the requirements specified in the section 366 mandate by (1) developing a comprehensive plan that includes quantifiable goals and milestones for tracking planned actions and measuring progress, and projected funding requirements to more fully address identified training constraints, (2) assessing current and future training range requirements and evaluating the adequacy of current resources to meet these requirements, and (3) developing a readiness reporting system to reflect the impact on readiness caused by training constraints due to limitations on the use of training ranges.

DOD disagreed with our findings that OSD's training range report failed to address the congressional reporting requirements mandated in section 366 and disagreed with three of our four recommendations. Our report outlined numerous instances where OSD's report did not address congressionally mandated reporting requirements. Our recommendations were intended to help DOD address all requirements specified in section 366. Without their implementation, DOD will continue to rely on incomplete information to support funding requests and legislative or regulatory changes to address encroachment issues. DOD's comments and our evaluation of them are discussed on pages 18-22.

Background

Over time, the military services report they have increasingly lost training range capabilities because of encroachment. According to DOD officials, the concerns about encroachment reflect the cumulative result of a slow but steady increase in problems affecting the use of their training ranges. Historically, specific encroachment problems have been addressed at individual ranges, most often on an ad hoc basis. DOD officials have

reported increased limits on and problems with access to and the use of ranges. They believe that the gradual accumulation of these limitations will increasingly threaten training readiness in the future. Yet, despite the reported loss of some capabilities, for the most part, the services do not report the extent to which encroachment has significantly affected training readiness.

Section 366 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003

Section 366 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 required that the Secretary of Defense develop a comprehensive plan for using existing authorities available to the Secretaries of Defense and the military departments to address training constraints caused by limitations on the use of military lands, marine areas, and airspace that are available in the United States and overseas for training. Section 366 also required that the Secretary of Defense develop and maintain an inventory that identifies all available operational training ranges, all training range capacities and capabilities, and any training constraints at each training range. In addition, the Secretary must complete an assessment of current and future training range requirements and an evaluation of the adequacy of current DOD resources to meet current and future training requirements. Section 366 further required that the Secretary of Defense submit to the Congress a report containing the plan, the results of the assessment and evaluation of current and future training requirements, and any recommendations that the Secretary may have for legislative or regulatory changes to address training constraints at the same time the President submits the budget for fiscal year 2004 and provide status reports on implementation annually between fiscal years 2005 and 2008. While the initial report was due when the President submitted the fiscal year 2004 budget to the Congress, the department did not meet this initial reporting requirement.

In an effort to obtain assistance from the military services in preparing this report, a January 2003 memorandum to the Secretaries of the Army, the Navy, and the Air Force, the Under Secretary of Defense for Personnel and Readiness directed that each of the military services develop a single standalone report that could be consolidated to form OSD's overall report. Each service was expected to provide an assessment of current and future training requirements with future projections to 2024, a report on the implementation of a range inventory system, an evaluation of the adequacy of current service resources to meet both current and future training requirements, and a comprehensive plan to address constraints resulting in adverse training impacts. The memorandum stated that once the services' inputs were received, they would be incorporated into a single

report to address the section 366 reporting requirement. As discussed more fully later, the services' inputs were incorporated to varying degrees in OSD's final training range report.

DOD and the Services' Sustainable Range Initiatives

In completing our analysis for this and other engagements related to training ranges, we found that the department and the military services individually have a number of initiatives underway to better address encroachment or other factors and ensure sustainability of military training ranges for future use. In August 2001, the department issued its draft *Sustainable Range Action Plans*,[7] which contained an action plan for each of the eight encroachment issues. Each action plan provided an overview and analysis of its respective encroachment issue along with strategies and actions for consideration by DOD decision makers. The department considered these action plans to be working documents supporting the overall sustainable range initiative. In June 2003, the Under Secretary of Defense for Personnel and Readiness issued a memorandum to the secretaries of the military departments providing guidance for sustainable range planning and programming efforts for fiscal years 2006-2011.[8] The services, recognizing the importance of ranges, have begun to implement various internal programs aimed at ensuring long-term range sustainment and the ability to meet both current and future requirements. In addition, OSD and the services have various systems to assess the condition of their ranges and are attempting to develop methods to reflect the readiness impacts caused by encroachment and other factors. Our recent work and the work of the DOD Inspector General[9] have identified a variety of factors that have adversely affected training ranges in recent years including a lack of adequate funding, maintenance, and modernization for training ranges.

The Army Deputy Chief of Staff for Training is responsible for establishing range priorities and requirements and managing the Range and Training

[7] Department of Defense, *Sustainable Range Action Plans* (Draft) (Washington, D.C.: Aug. 2001).

[8] The memorandum identified seven areas (Infrastructure, Operations, Maintenance, Encroachment, Environmental Responsibilities, Outreach, and New Technologies) that the Under Secretary believes will significantly advance the department's efforts toward building viable range sustainment programs.

[9] Department of Defense Inspector General, *Acquisition: Major Range and Test Facility Base*, D-2004-035 (Washington, D.C.: Dec. 8, 2003).

Land Program, which includes range modernization and maintenance, and land management through the Integrated Training Area Management Program. This office is creating and implementing the Sustainable Range Program to manage its ranges in a more comprehensive manner; meet the challenges brought on by encroachment; and maximize the capability, availability, and accessibility of its ranges. According to an official of the Office of the Army Deputy Chief of Staff for Training, the Sustainable Range Program will evolve into a new Army training range regulation that will replace the current Army Regulation 210-21, Range and Training Land Program, and Army Regulation 350-4, Integrated Training Area Management.[10]

On December 1, 2003, the Navy centralized its range management functions, to include training and testing ranges, target development and procurement, and test and evaluation facilities, into the Navy Range Office, Navy Ranges and Fleet Training Branch. The Navy Range Office integration will streamline processes, provide a single voice for range policy and management oversight, and provide a single resource sponsor. Recognizing the importance of Navy training ranges and to meet congressional reporting requirements, the Navy is developing a Navy Range Strategic Plan. The Navy plans to have this completed by June 2004. In addition, the Navy is working with the Center for Naval Analysis to develop a transferable analytical tool for systematic and rigorous range assessment. This tool is expected to integrate existing initiatives, such as the range complex management plans, the Navy mission essential tasks lists, and an encroachment log, into a methodology to identify, assess, and prioritize physical range resource deficiencies—to include those caused by encroachment issues—across ranges. An official of the Navy Range Office stated that the Navy plans to pilot the tool at the Southern California Complex[11] by November 2004.

In October 2001, the Marine Corps established an executive agent for range and training area management to implement its vision for mission-capable ranges. The Range and Training Area Management Division is

[10] Army regulations, *Range and Training Land Program*, 210-21 (Washington, D.C.: May 1, 1997), and *Integrated Training Area Management*, 350-4 (Washington, D.C.: May 8, 1998).

[11] The Southern California complex comprises nine instrumented areas and many associated training, warning, restricted, and operations areas in three major components: the San Clemente Island Range Complex, Naval Amphibious Base Coronado training areas, and offshore operating areas and airspace.

located within the Training and Education Command. These offices are charged with developing systems, operational doctrine, and training requirements for Marine Corps forces. In addition to its own ranges, the Marine Corps engages in extensive cross-service utilization by depending on extensive and extended access to non-Marine Corps training ranges.

The Air Force's Director of Operations and Training, Ranges and Airspace Division acts as the executive agent for range management for the Air Force. The associate director for ranges and airspace stated that Air Force range issues have become much more sensitive due to a number of recent events, including the Navy's departure from Vieques, Puerto Rico; controversy with the Mountain Home Range, Idaho; the loss of naval ranges in Hawaii; and the push to redesign the national air space. As a result, Air Force leadership has become more aware of range needs. The Air Force has an integrated approach to range management, to include range planning, operations, construction, and maintenance. Air Force Range Planning and Operations Instruction[12] is the primary document governing Air Force planning as it relates to its ranges. In addition, the Air Force, using RAND, has conducted two studies addressing its training requirements and training range capacities, capabilities, and constraints.[13] In general, the studies found that the Air Force's training ranges did not always meet the services' training requirements. For example, one study found that the distance between Air Force training ranges and bases exceeded the established flying limitation for 19 percent of the total air-to-ground training requirements for fighter jets.

OSD's Prior Legislative Proposals

In 2002, the department prepared and submitted to the Congress a package of legislative proposals to modify or clarify existing environmental legislation to address encroachment issues. The proposals, known as the Readiness and Range Preservation Initiative, were tailored to protect military readiness activities, not the entire scope of DOD activities.[14] The proposals sought, among other things, to clarify provisions of the

[12] Air Force Instruction, *Range Planning and Operations*, 13-212 (Washington, D.C.: Aug. 7, 2001).

[13] RAND, *Relating Ranges and Airspace to Air Combat Command Missions and Training*, MR-1286-AF, and *A Decision Support System for Evaluating Ranges and Airspace*, MR-1286/1-AF (Langley Air Force Base, Va.: 2001).

[14] Department of Defense, *Readiness and Range Preservation Initiative* (Washington, D.C.: Apr. 2002).

Endangered Species Act; Marine Mammal Protection Act; Clean Air Act; Solid Waste Disposal Act; Resource Conservation and Recovery Act; Comprehensive Environmental Restoration, Compensation, and Liability Act; and the Migratory Bird Treaty Act.

The Bob Stump National Defense Authorization Act for Fiscal Year 2003 enacted three provisions, including two that allow DOD to cooperate more effectively with third parties on land transfers for conservation purposes, and a third that provides a temporary exemption from the Migratory Bird Treaty Act for the unintentional taking of migratory birds during military readiness activities. In March 2003, the department submitted five provisions to the Congress; the National Defense Authorization Act for Fiscal Year 2004 enacted two provisions including a clarification of "harassment" under the Marine Mammal Protection Act and allowing approved Integrated Natural Resource Management Plans to substitute for critical habitat designation under the Endangered Species Act. DOD submitted proposed legislation to the Congress on April 6, 2004, in a continuing effort to clarify provisions of the Clean Air Act; Comprehensive Environmental Response, Compensation, and Liability Act; and the Resource Conservation and Recovery Act.

Prior GAO Reports and Testimonies

In 2002, we issued two reports on the effects of encroachment on military training and readiness. In April 2002, we reported that troops stationed outside of the continental United States face a variety of training constraints that have increased over the last decade and are likely to increase further.[15] In June 2002, we reported on the impact of encroachment on military training ranges inside the United States and had similar findings to our earlier report.[16] We reported that many encroachment issues resulted from or were exacerbated by population growth and urbanization. DOD was particularly affected because urban growth near 80 percent of its installations exceeded the national average. In both reports, we stated that impacts on readiness were not well documented. In our June 2002 report, we recommended that (1) the services develop and maintain inventories of their training ranges, capacities, and capabilities, and fully quantify their training requirements considering complementary approaches to training; (2) OSD create a DOD

[15] U.S. General Accounting Office, *Military Training: Limitations Exist Overseas but Are Not Reflected in Readiness Reporting*, GAO-02-525 (Washington, D.C.: Apr. 30, 2002).

[16] GAO-02-614.

database that identifies all ranges available to the department and what they offer, regardless of service ownership, so that commanders can schedule the best available resources to provide required training; (3) OSD finalize a comprehensive plan for administrative actions that includes goals, timelines, projected costs, and a clear assignment of responsibilities for managing and coordinating the department's efforts to address encroachment issues on military training ranges; and (4) OSD develop a reporting system for range sustainability issues that will allow for the elevation of critical training problems and progress in addressing them to the Senior Readiness Oversight Council for inclusion in Quarterly Readiness Reports to the Congress as appropriate. In addition, we testified twice on these issues—in May 2002 and April 2003.[17] In September 2003, we also reported that through increased cooperation DOD and other federal land managers could share the responsibility for managing endangered species.[18]

In March 2004, we issued a guide to help managers assess how agencies plan, design, implement, and evaluate effective training and development programs that contribute to improved organizational performance and enhanced employee skills and competencies.[19] The framework outlined in this guide summarizes attributes of effective training and development programs and presents related questions concerning the components of the training and development process. Over time, assessments of training and development programs using this framework can further identify and highlight emerging and best practices, provide opportunities to enhance coordination and increase efficiency, and help develop more credible information on the level of investment and the results achieved across the federal government.

[17] U.S. General Accounting Office, *Military Training: DOD Lacks a Comprehensive Plan to Manage Encroachment on Training Ranges*, GAO-02-727T (Washington, D.C.: May 16, 2002); and *Military Training: DOD Approach to Managing Encroachment on Training Ranges Still Evolving*, GAO-03-621T (Washington, D.C.: Apr. 2, 2003).

[18] U.S. General Accounting Office, *Military Training: Implementation Strategy Needed to Increase Interagency Management for Endangered Species Affecting Training Ranges*, GAO-03-976 (Washington, D.C.: Sept. 29, 2003).

[19] U.S. General Accounting Office, *Human Capital: A Guide for Assessing Strategic Training and Development Efforts in the Federal Government*, GAO-04-546G (Washington, D.C.: March 2004).

OSD's Training Range Inventory Does Not Yet Contain Sufficient Information to Use as a Baseline for a Comprehensive Plan

OSD's training range inventory does not yet contain sufficient information to use as a baseline for developing a comprehensive training range plan. As a result, OSD's report does not include a comprehensive plan to address training constraints caused by limitations on the use of military lands, marine areas, and airspace in the United States and overseas, as required by section 366. Without a comprehensive plan that identifies quantifiable goals or milestones for tracking planned actions and measuring progress, or projected funding requirements, it will be difficult for OSD to comply with the legislative requirement to report annually on its progress in implementing the plan.

OSD's Training Range Inventory Does Not Contain Sufficient Information

OSD's training range inventory, which is a compilation of the individual services' inventories, does not contain sufficient information to provide a baseline for developing a comprehensive training range sustainment plan. Section 366 requires the Secretary of Defense to develop and maintain an inventory that identifies all available operational training ranges, all training range capacities and capabilities, and any training constraints at each training range. Although OSD's inventory lists the services' training ranges as of November 2003 and identifies capabilities, the inventory does not identify specific range capacities or existing training constraints caused by encroachment or other factors, such as a lack of adequate maintenance or modernization. Nevertheless, to date, this is the best attempt we have identified by the services to inventory their training ranges. In doing so, OSD and the services provided more descriptive examples of constraints than ever before but did not fully identify the actual impacts on training. Without such information, it is difficult to develop a meaningful plan to address training constraints caused by encroachment or other factors.

While OSD's inventory is a consolidated list of ranges and capabilities as of November 2003, OSD and the services' inventories are not integrated and accessibility is limited. Therefore, it is not a tool that commanders could use to identify range availability, regardless of service ownership, and schedule the best available resources to provide required training. In addition, OSD has no method to continuously maintain this inventory without additional requests for data, even though section 366 requires the Secretary of Defense to maintain and submit an updated inventory annually to the Congress. In 2001, RAND concluded that centralized repositories of information on Air Force ranges and airspace are limited,

with little provision for updating the data. RAND noted that a comprehensive database is a powerful tool for range and airspace managers that must be continuously maintained and updated.[20] In addition, a knowledgeable official of the Office of the Under Secretary of Defense for Personnel and Readiness stated that having a common management system to share current range information is needed to identify range availability, capabilities, capacities, and cumulative effects of encroachment on training readiness. This official also noted that it would take several years to develop such a system. However, OSD did not address this system in its report.

OSD's Training Range Report Does Not Include a Comprehensive Plan

Without an inventory that fully identifies available training resources, specific capacities and capabilities, and existing training constraints, it is difficult to frame a comprehensive training range plan to address constraints. As a result, OSD's report does not include a comprehensive plan to address training constraints caused by limitations on the use of military lands, marine areas, and airspace that are available in the United States and overseas for training—as required by section 366. Such a plan was to include proposals to enhance training range capabilities and address shortfalls, goals, and milestones for tracking planned actions and measuring progress, projected funding requirements for implementing planned actions, and designation of OSD and service offices responsible for overseeing implementation of the plan. However, OSD's report does not contain quantifiable goals or milestones for tracking planned actions and measuring progress, or projected funding requirements, which are critical elements of a comprehensive plan. Rather than a comprehensive plan, OSD and service officials characterized the report as a status report of the services' efforts to address encroachment that also includes service proposals to enhance training range capabilities, as previously discussed in the background, and designates OSD and service offices responsible for overseeing implementation of a comprehensive training range plan. According to a knowledgeable official of the Office of the Under Secretary of Defense for Personnel and Readiness, by providing the Congress a report on the current status of the individual services' efforts to put management systems in place to address encroachment issues and ensure range sustainability, OSD believed it was meeting the mandated requirements.

[20] RAND MR-1286-AF.

A professional journal article on sustaining DOD ranges, published by knowledgeable defense officials in 2000, notes that there should be some form of a national range comprehensive plan that provides the current situation, establishes a vision with goals and objectives for the future, and defines the strategies to achieve them.[21] The article states that only with such a comprehensive plan can sustainable ranges and synergy be achieved. In addition, the article notes that while this plan should be done at the department-level, "DOD's bias will be to have the services do individual plans." In fact, OSD and service officials told us during our review that OSD should not be responsible for framing a comprehensive training range plan because the services are responsible for training issues. Despite that view, OSD has recently issued a comprehensive strategic plan and associated implementation plan—which includes all of the above elements—for more broadly transforming DOD's training.[22]

OSD's Training Range Report Does Not Fully Meet Other Requirements Mandated by Section 366

OSD's *Implementation of the Department of Defense Training Range Comprehensive Plan* report, which is a consolidation of information provided by the services, does not fully meet other requirements mandated by section 366. Specifically, it does not (1) fully assess current and future training range requirements; (2) fully evaluate the adequacy of current DOD resources, including virtual and constructive assets, to meet current and future training range requirements; (3) identify recommendations for legislative or regulatory changes to address training constraints; or (4) contain plans to improve the readiness reporting system.

OSD's Report Does Not Fully Assess Current and Future Training Range Requirements

OSD's report does not fully assess current and future training range requirements. Instead, the report describes the services' processes to develop, document, and execute current training and training range requirements. The services' inputs, as required by OSD's guidance, vary in their emphasis on individual areas of requested information. Only the Air Force's submission to OSD's report identifies specific annual training

[21] Jesse O. Borthwick, Senior Environmental Scientist, Eglin Range, Fla., and Eric A. Beshore, PE, RA, Colonel USAF (Retired), Senior Program Manager, Science Applications International Corporation, "Sustaining DOD Ranges: A National Environmental Challenge," *Federal Facilities Environmental Journal*, Summer 2000.

[22] Department of Defense, Office of the Under Secretary for Personnel and Readiness, *Strategic Plan for Transforming DOD Training* (Washington, D.C.: Mar. 1, 2002); and *Department of Defense Training Transformation Implementation Plan* (Washington, D.C.: June 10, 2003).

requirements by type of aircraft, mission category, type of training activity, and unit. By identifying its training requirements, the Air Force is in a better position to evaluate the adequacy of resources to meet current and future training requirements. Without a complete assessment, OSD and the services cannot determine whether available training resources are able to meet current and future requirements.

OSD's Report Does Not Fully Evaluate the Adequacy of Current DOD Resources to Meet Current and Future Training Range Requirements

OSD's report does not fully evaluate the adequacy of current DOD resources to meet current and future training range requirements in the United States and overseas. The report does not compare training range requirements to existing resources—a primary method to evaluate the adequacy of current resources—in the United States and does not evaluate overseas training resources. Instead, OSD's report states that generally the services' ranges allow military forces to accomplish most of the current training missions. However, this conflicts with later statements in the report noting that encroachment limits the services' ability to meet current core and joint training requirements.[23] For example, OSD's report discusses an evaluation of the Air Force's ranges in the United States, and identifies shortfalls in the Air Force's range resources and constraints that affect operations. The evaluation shows that the distance between Air Force training ranges and bases exceeded the established flying limitation for 19 percent of the total air-to-ground training requirements for fighter jets. The report also notes that the Army has shortages of modernized or automated ranges and has a significant overage of older ranges that do not fully meet current training requirements, but the report does not identify where these shortages occur or explain how this determination was made. In addition, the report states that 28 of 35 Army range categories[24] have some or major deficiencies that do not meet Army standards, or impair or significantly impair mission performance. The report further notes the condition of Marine Corps ranges and provides a general rating of the ranges by installation but does not identify specific shortfalls in resources or evaluate the adequacy of current resources to meet future training range requirements. OSD's report also notes that simulation plays a role in military training, but does not address the relative impact or adequacy of

[23] This statement also conflicts with numerous congressional testimonies given by OSD and service officials in the past 3 years that identify instances where encroachment impacts training.

[24] The Army defines range categories by the type of training that can be accomplished on them.

simulated training to meet current and future training range requirements, or to what extent simulation may help minimize constraints affecting training ranges.

OSD's Report Does Not Identify Recommendations for Legislative or Regulatory Changes

While OSD's report does not include any recommendations for legislative or regulatory changes to address training constraints, DOD submitted proposed legislation to the Congress on April 6, 2004, in an effort to clarify the intent of the Clean Air Act; Comprehensive Environmental Response, Compensation, and Liability Act; and the Resource Conservation and Recovery Act. Without these clarifications, according to DOD officials, the department would continue to potentially face lawsuits that could force the services to curtail training activities. According to DOD, the clarifications are to (1) grant test ranges a 3-year extension from complying with the Clean Air Act requirement when new units or weapons systems are moved to a range and (2) exempt military munitions at training ranges from provisions of the Comprehensive Environmental Response, Compensation, and Liability Act and Resource Conservation and Recovery Act to avoid the classification of munitions as solid waste, which could required expensive cleanup activities.

OSD's Report Does Not Include Plans to Improve the Readiness Reporting System

OSD's report does not address the department's plans to improve the readiness reporting system, called the Global Status of Resources and Training System, as required by the mandate. According to a knowledgeable OSD official, the Global Status of Readiness and Training System is not the system to capture encroachment impacts that are long-term in nature, rather it addresses short-term issues. Instead, according to an OSD official, the department is working on a Defense Readiness Reporting System, which is expected to capture range availability as well as other factors that may constrain training. However, OSD did not address either system in its report.

Conclusions

While OSD's *Implementation of the Department of Defense Training Range Comprehensive Plan* report addresses some of the mandated requirements, it does not fulfill the requirement for an inventory identifying range capacities or training constraints caused by encroachment or other factors, such as a lack of adequate maintenance or modernization; a comprehensive training range plan to address encroachment on military training ranges; an adequate assessment of current and future training range requirements; a sufficient evaluation of the adequacy of current DOD resources, including virtual and constructive

assets, to meet current and future training range requirements; recommendations for legislative or regulatory changes to address training constraints; or plans to improve the readiness reporting system. Instead, the report provides the current status of the services' various sustainable range efforts in the United States. Currently, OSD's inventory consists of individual services' inputs as of November 2003, but it is not a tool that commanders could use to identify range availability, regardless of service ownership, and schedule the best available resources to provide required training. In addition, OSD apparently has no planned method to continuously maintain this inventory. Without an integrated training range inventory that could be continuously updated and available at all command levels, the services may not have knowledge of or access to the best available training resources. This inventory may also have a significant impact on the ability of the services to support joint training. Also, without such an inventory, it will be difficult for OSD and the services to develop a comprehensive plan to address these issues to ensure range sustainability to support current and future training range requirements. As a result, even though various services' initiatives are underway to better address encroachment or other factors and ensure sustainability of military training ranges for future use, OSD's training range report did not include a comprehensive plan to address training constraints in the United States and overseas—as required by section 366. Without a plan that includes quantifiable goals and milestones for tracking planned actions and measuring progress, and projected funding requirements, OSD and the services may not be able to address the ever-growing issues associated with encroachment and measure the progress in addressing these issues. Similarly, OSD's training range report did not fully assess current and future training range requirements or fully evaluate the adequacy of current resources to meet these requirements. Without these types of analyses, OSD and the services will not be able to determine shortfalls in training resources to better allocate training resources and may continue to maintain ranges that are no longer needed to meet current training requirements. Finally, the report did not include any recommendations for legislative or regulatory changes to address training constraints or a plan to improve the readiness reporting system to reflect the impact on readiness caused by training constraints due to limitations on the use of training ranges. Without an inventory identifying range capacities or training constraints caused by encroachment or other factors or a comprehensive training range plan to address training constraints caused by limitations on the use training ranges, OSD and the services will continue to rely on incomplete information to support funding requests and legislative or regulatory changes to address these issues.

Recommendations for Executive Action

To serve as the baseline for the comprehensive training range plan required by section 366, we recommend that the Secretary of Defense direct the Under Secretary of Defense for Personnel and Readiness and the secretaries of the military services to jointly develop an integrated training range database that identifies available training resources, specific capacities and capabilities, and training constraints caused by limitations on the use of training ranges, which could be continuously updated and shared among the services at all command levels, regardless of service ownership.

To improve future reports, we also recommend that OSD provide a more complete report to the Congress to fully address the requirements specified in the section 366 mandate by (1) developing a comprehensive plan that includes quantifiable goals and milestones for tracking planned actions and measuring progress, and projected funding requirements to more fully address identified training constraints, (2) assessing current and future training range requirements and evaluating the adequacy of current resources to meet these requirements, and (3) developing a readiness reporting system to reflect the impact on readiness caused by training constraints due to limitations on the use of training ranges.

Agency Comments and Our Evaluation

In commenting on a draft of this report, the Deputy Under Secretary of Defense for Readiness disagreed with our finding that OSD's training range report failed to address the congressional reporting requirements mandated in section 366 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 and disagreed with three of our four recommendations. As it clearly points out, this report outlines numerous instances where OSD's report did not address congressionally mandated reporting requirements. Our recommendations were intended to help DOD address all requirements specified in section 366. Without their implementation, DOD will continue to rely on incomplete information to support funding requests and legislative or regulatory changes to address encroachment and other factors.

DOD disagreed with our first recommendation—to jointly develop an integrated training range database that identified available training resources, specific capacities and capabilities, and training constraints, which could be continuously updated and shared among all the services at all command levels regardless of service ownership. As discussed in our report, OSD's inventory consists of individual services' inputs as of November 2003 and is not a tool that commanders could use to identify range availability, regardless of service ownership, and schedule the best

available resources to provide required training. Further, as noted in our report, the individual service submissions continue to provide limited information on how training has been constrained by encroachment or other factors. In contrast, section 366 clearly requires the Secretary of Defense to develop and maintain an inventory that identifies all available operational training ranges, all training range capacities and capabilities, and any training constraints at each training range. DOD's suggestion that our draft report recommended that DOD should initiate a "massive new database" effort to allow OSD management of individual range activities is without merit. Our recommendation merely specified section 366 legislative requirements that were not found in OSD's training range report to the Congress.

Also, DOD's disagreement with our first recommendation seems inconsistent with other comments DOD officials have made as noted in this and other GAO reports regarding military training range inventories.[25] In commenting on this report, DOD specifically stated that it agreed that, as a long-term goal, the services' inventory systems should be linked to support joint use. In commenting on a prior report, DOD stated that the services were developing a statement of work in order to contract with a firm capable of delivering an enterprise level web-enabled system that will allow cross service, as well as intra-service training use of inventory data.[26] Further, in a 2003 study, the U.S. Special Operations Command stated that all components needed to create master range plans that addressed their current and future range issues and solutions.[27] The command also recommended that plans identify and validate training requirements and facilities available and define the acceptable limits of workarounds. Without an integrated training range inventory, we continue to believe that it will be difficult for OSD and the services to develop a comprehensive plan and track its progress in addressing training constraints and ensuring range sustainability.

DOD generally concurred with our second recommendation—to develop a comprehensive plan that includes quantifiable goals and milestones for tracking planned actions and measuring progress, and projected funding

[25] GAO-02-525 and GAO-02-614.

[26] GAO-02-614.

[27] U.S. Special Operations Command, *Tiger Team Report: Global Special Operations Forces Range Study* (MacDill Air Force Base, Fla.: Jan. 27, 2003).

requirements to more fully address identified training constraints. However, the department's comments suggest it plans simply to summarize ongoing efforts of individual services rather than formulate a comprehensive strategy for addressing training constraints. Without a plan that includes quantifiable goals and milestones for tracking planned actions and measuring progress, and projected funding requirements, OSD and the services may not be able to address the ever-growing issues associated with encroachment and other training constraints and measure the progress in addressing these issues. Also, a summary of ongoing efforts does not fully address the requirements of section 366, which calls for a comprehensive plan for using existing authorities available to the Secretaries of Defense and the military departments to address training constraints caused by limitations on the use of military lands, marine areas, and airspace that are available in the United States and overseas for training. Second, it directly contradicts DOD's concurrence with recommendations made in our June 2002 report where we specifically recommended that the department develop a plan with the same elements subsequently required by the mandate.[28] Third, it contradicts a January 2003 report of the Southwest Region Range Sustainability Conference sponsored by the Deputy Under Secretary of Defense for Readiness and the Deputy Under Secretary of Defense for Installations and Environment.[29] The conference report recommended a national range sustainability and infrastructure plan—which could also address section 366 requirements—to include range requirements, overall vision, current and future requirements, and encroachment issues. Without a comprehensive plan that includes quantifiable goals and milestones for tracking planned actions and measuring progress, and projected funding requirements, we continue to believe that OSD and the services may not be able to address the ever-growing issues associated with encroachment and other training constraints, and measure the progress in addressing these issues.

DOD disagreed with our third recommendation—to assess current and future training range requirements and evaluate the adequacy of current resources to meet these requirements. It stated that it is inappropriate and impractical to include this level of detail in an OSD-level report and that the Congress is better served if the department describes, summarizes, and

[28] GAO-02-614.

[29] Department of Defense Region IX Regional Environmental Coordinator, *Southwest Region Range Sustainability Conference Report* (San Diego, Calif.: Jan. 7, 2003).

analyzes range requirements. Clearly, these statements are contradictory in that section 366 requires that OSD report on its assessment of current and future training range requirements and an evaluation of the adequacy of current DOD resources to meet current and future training requirements, which could be accomplished by providing the aforementioned description, summary, and analysis of range requirements. While the department's training range report provided a description of the methodology used by each service to develop their requirements, it did not provide any detail regarding such analyses. Without these types of analyses, we continue to believe that OSD and the services will not be able to determine shortfalls in training resources to better allocate training resources and may continue to maintain ranges that are no longer needed to meet current training requirements. In addition, the department questions why we did not examine detailed requirements work being done at each installation. While we agree with DOD that this type of examination could be useful, it is unclear why OSD's report did not provide a discussion of the work underway at individual installations. While we may conduct such an examination in the future, section 366 did not specifically require us to conduct this examination, nor did it provide us sufficient time for such an examination.

DOD disagreed with our fourth recommendation—to develop a readiness reporting system to reflect the impact on readiness caused by training constraints. DOD further stated that it was inappropriate to modify the Global Status of Readiness and Training System report to address encroachment and that it plans to incorporate encroachment impacts on readiness into the Defense Readiness Reporting System. Our draft report recognized that the department does not believe that the Global Status of Readiness and Training System is the system to capture encroachment impacts. Given that OSD's training range reports are required to provide a status of efforts to address training constraints, it is unclear why OSD's report did not provide an assessment of progress in this area. We continue to believe that future reports should provide the Congress with information on DOD's progress toward improving readiness reporting—whether it is the Defense Readiness Reporting System as cited in DOD's comments or another system—to reflect the impact on readiness caused by training constraints due to limitations on the use of training ranges, as required by section 366.

We continue to believe our recommendations are valid and without their implementation, DOD will continue to rely on incomplete information to support funding requests and legislative or regulatory proposals to address

encroachment and other training constraints, and will not be able to fully address the congressionally mandated requirements in section 366.

The Deputy Under Secretary's comments are included in appendix II.

Scope and Methodology

To determine the extent to which OSD's training range inventory contains sufficient information to develop a comprehensive training range plan, we reviewed OSD's inventory of the services' training ranges to determine whether the inventory identified training capacities and capabilities, and constraints caused by encroachment or other factors for each training range. In addition, we reviewed the services' inputs to OSD's inventory and OSD's report for a comprehensive training range plan.[30] We also discussed OSD's inventory and the services' inputs and the need for a comprehensive training range plan with officials from the Office of the Director of Readiness and Training, Office of the Under Secretary of Defense, Personnel and Readiness; and a representative of the contractor, who compiled the report. Also, we reviewed two RAND studies on Air Force ranges and airspace.

To determine the extent to which OSD's *Implementation of the Department of Defense Training Range Comprehensive Plan* report meets other requirements mandated by section 366, we reviewed the report to determine if it contained an assessment of current and future training range requirements; an evaluation of the adequacy of current DOD resources, including virtual and constructive assets, to meet current and future training range requirements; recommendations for legislative or regulatory changes to address training constraints; and plans to improve the readiness reporting system. To obtain further clarification and information, we reviewed the individual submissions from the Army, Navy, Marine Corps, and Air Force. We also discussed OSD's report and the services' inputs with officials from the Office of the Director of Readiness and Training, Office of the Under Secretary of Defense, Personnel and Readiness; the Office of the Director, Training Directorate, Training Simulations Division, Office of the Deputy Chief of Staff, Department of the Army; the Navy Ranges and Fleet Training Branch, Fleet Readiness Division, Fleet Readiness and Logistics, Office of the Deputy Chief of Naval Operations; the Range and Training Area Management Division,

[30] We did not verify the completeness or accuracy of OSD's inventory or the services' inventory inputs.

Training and Education Command, Headquarters, Marine Corps; and the Office of the Director of Ranges and Airspace, Air and Space Operations, Headquarters, Air Force. We also met with a representative of the contractor who compiled the report. To determine what guidance the services were given when preparing their submission to the department's report, we also reviewed the January 28, 2003, memorandum from the Under Secretary of Defense for Personnel and Readiness to the military services.[31] We also reviewed DOD's Sustainment of Ranges and Operating Areas directive[32] that establishes policy and assigns responsibilities for the sustainment of test and training ranges and the department's Strategic Plan for Transforming DOD Training and Training Transformation Implementation Plan.[33]

We assessed the reliability of the data in OSD's report by (1) reviewing existing information about military training ranges, (2) interviewing OSD and service officials knowledgeable about the report and training ranges, and (3) examining the data elements in the report by comparing known statistics and information. We determined that the data were sufficiently reliable for the purposes of this report.

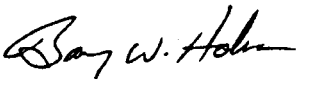
We are sending copies of this report to the appropriate congressional committees, as well as the Secretaries of Defense, the Army, the Navy, and the Air Force, and the Director, Office of Management and Budget. We will also make copies available to others upon request. In addition, the report will be available at no charge on GAO's Web site at http://www.gao.gov.

[31] Department of Defense, Under Secretary of Defense for Personnel and Readiness, *Guidance for Complying with the Provisions of Section 366.*

[32] Department of Defense Directive. *Sustainment of Ranges and Operating Areas*, 3200.15 (Washington, D.C.: Apr. 2003).

[33] DOD, Strategic and Implementation Plans for Training Transformation.

If you or your staff have any questions on the matters discussed in this letter, please contact me at (202) 512-8412, or my Assistant Director, Mark A. Little, at (202) 512-4673. Patricia J. Nichol, Tommy Baril, Steve Boyles, and Ann DuBois were major contributors to this report.



Barry W. Holman, Director
Defense Capabilities and Management

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House of Representatives

Appendix I: Section 366 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003

SEC. 366. Training Range Sustainment Plan, Global Status of Resources and Training System, and Training Range Inventory.

(a) PLAN REQUIRED—(1) The Secretary of Defense shall develop a comprehensive plan for using existing authorities available to the Secretary of Defense and the Secretaries of the military departments to address training constraints caused by limitations on the use of military lands, marine areas, and airspace that are available in the United States and overseas for training of the Armed Forces.

(2) As part of the preparation of the plan, the Secretary of Defense shall conduct the following:

(A) An assessment of current and future training range requirements of the Armed Forces.

(B) An evaluation of the adequacy of current Department of Defense resources (including virtual and constructive training assets as well as military lands, marine areas, and airspace available in the United States and overseas) to meet those current and future training range requirements.

(3) The plan shall include the following:

(A) Proposals to enhance training range capabilities and address any shortfalls in current Department of Defense resources identified pursuant to the assessment and evaluation conducted under paragraph (2).

(B) Goals and milestones for tracking planned actions and measuring progress.

(C) Projected funding requirements for implementing planned actions.

(D) Designation of an office in the Office of the Secretary of Defense and in each of the military departments that will have lead responsibility for overseeing implementation of the plan.

(4) At the same time as the President submits to Congress the budget for fiscal year 2004, the Secretary of Defense shall submit to Congress a report describing the progress made in implementing this subsection, including—

(A) the plan developed under paragraph (1);

(B) the results of the assessment and evaluation conducted under paragraph (2); and

(C) any recommendations that the Secretary may have for legislative or regulatory changes to address training constraints identified pursuant to this section.

(5) At the same time as the President submits to Congress the budget for each of fiscal years 2005 through 2008, the Secretary shall submit to Congress a report describing the progress made in implementing the plan and any additional actions taken, or to be taken, to address training constraints caused by limitations on the use of military lands, marine areas, and airspace.

(b) READINESS REPORTING IMPROVEMENT—Not later than June 30, 2003, the Secretary of Defense, using existing measures within the authority of the Secretary, shall submit to Congress a report on the plans of the Department of Defense to improve the Global Status of Resources and Training System to reflect the readiness impact that training constraints caused by limitations on the use of military lands, marine areas, and airspace have on specific units of the Armed Forces.

(c) TRAINING RANGE INVENTORY—(1) The Secretary of Defense shall develop and maintain a training range inventory for each of the Armed Forces—

(A) to identify all available operational training ranges;

(B) to identify all training capacities and capabilities available at each training range; and

(C) to identify training constraints caused by limitations on the use of military lands, marine areas, and airspace at each training range.

(2) The Secretary of Defense shall submit an initial inventory to Congress at the same time as the President submits the budget for fiscal year 2004 and shall submit an updated inventory to Congress at the same time as the President submits the budget for fiscal years 2005 through 2008.

(d) GAO EVALUATION—The Secretary of Defense shall transmit copies of each report required by subsections (a) and (b) to the Comptroller General. Within 60 days after receiving a report, the Comptroller General shall submit to Congress an evaluation of the report.

(e) ARMED FORCES DEFINED—In this section, the term 'Armed Forces' means the Army, Navy, Air Force, and Marine Corps.

Appendix II: Comments from the Department of Defense

OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND READINESS

MAY 2 0 2004

Mr. Barry W. Holman
Director, Defense Capabilities and Management
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. ~~Holman~~ Barry:

This is the Department of Defense (DoD) response to the General Accounting Office Draft Report GAO-04-608, "MILITARY TRAINING: OSD Report on Training Ranges Does Not Fully Address Congressional Reporting Requirements," April 19, 2004 (GAO Code 350481).

The Department appreciates the opportunity to comment on this draft. We disagree with the GAO's findings that our February 2004 report to Congress fails to satisfy stated requirements. DoD therefore non-concurs with the GAO's recommendations in this area. The Department's comments to the GAO draft recommendations are enclosed.

Sincerely,

Paul W. Mayberry
Deputy Under Secretary
Readiness

Enclosure:
As stated

GAO-04-608/GAO CODE 350481

"MILITARY TRAINING: DOD REPORT ON TRAINING RANGES DOES NOT FULLY MEET CONGRESSIONAL REPORTING REQUIREMENTS"

DEPARTMENT OF DEFENSE COMMENTS TO THE RECOMMENDATIONS

RECOMMENDATION 1: The GAO recommended that the Secretary of Defense direct the Under Secretary of Defense for Personnel and Readiness and the Secretaries of the Military Services to jointly develop an integrated training range database that identifies available training resources, specific capacities and capabilities, and training constraints caused by limitations on the use of training ranges, which could be continuously updated and shared among the Services at all command levels, regardless of Service ownership. (Page 18/Draft Report)

DoD RESPONSE: Non-concur. Each Military Service already possesses and is improving range information systems that address the features described in this recommendation. Further, the Department agrees that, as a long-term goal these systems should be linked to support joint use. It is DoD policy to document encroachment concerns and environmental considerations and improve information systems related to range management. The Services and OSD are moving forward in a deliberate approach that builds on existing systems and carefully manages the costs and risks inherent in information system integration and development. As part of our yearly Section 366 reports, the Department will document progress in this evolutionary effort to link and improve the Service range information systems.

However, the Department non-concurs with the recommendation that it should initiate a new massive database effort to allow OSD management of individual range activities. It must be recognized that each Service operates ranges to meet specific training requirements. While increased cross-Service or cross-functional use is a DoD goal, it does not resolve training constraints brought about by encroachment.

RECOMMENDATION 2: The GAO recommended that OSD provide a more complete report to the Congress to fully address the requirements specified in the Section 366 mandate by developing a comprehensive plan, which includes quantifiable goals and milestones for tracking planned actions and measuring progress, and projected funding requirements to more fully address identified training constraints. (Page 18/Draft Report)

DoD RESPONSE: Concur with comment. Meeting Section 366 requirements can be accomplished only through a long-term approach. Under OSD leadership, each of the Military Services has initiated an enhanced range management and comprehensive

planning process, as an integral element of expanding range sustainability programs. In line with this evolution, future reports will more fully address goals and milestones and projected funding requirements associated with these comprehensive plans. The Department is and will continue to execute a comprehensive program to improve sustainability of its ranges, and disagrees with the implication in this recommendation that it does not.

RECOMMENDATION 3: The GAO recommended that OSD provide a more complete report to the Congress to fully address the requirements specified in the Section 366 mandate by assessing current and future training range requirements and evaluating the adequacy of current resources to meet these requirements. (Page 18/Draft Report)

DoD RESPONSE: Non-concur. The Department has begun a program to better define range requirements. Because a valid requirements base must be a bottom-up process, this effort entails detailed work at each installation. It is unclear why GAO chose to not examine these efforts. Also, it is both impractical and inappropriate to include this level of detail in an OSD-level report. DoD believes that the Congress is better served if the Department describes, summarizes, and analyzes training requirements in its Section 366 reporting, rather than simply providing the requirements themselves. DoD therefore non-concurs with the GAO finding that it is not appropriately addressing this recommendation.

RECOMMENDATION 4: The GAO recommended that OSD provide a more complete report to the Congress to fully address the requirements specified in the Section 366 mandate by developing a readiness reporting system to reflect the impact on readiness caused by training constraints due to limitations on the use of training ranges. (Page 18/Draft Report)

DoD RESPONSE: Non-concur. The Department has, in its response to GAO's previous report and at other opportunities, stated that it is inappropriate to modify the SORTS report to address encroachment. DoD believes it is best to assess how encroachment impacts affect the ability of installations and ranges to conduct training and testing. DoD plans to incorporate encroachment impacts on readiness into the Defense Readiness Reporting System (DRRS), which is currently under development.

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Homeland Defense

SUMMARY OF AFIT PAPER ON ALERT LOCATION OPTIMIZATION

Background

-In March 2004, AFIT student Capt. Jon A. Eberlan published a thesis entitled "LOCATION OPTIMIZATION OF CONTINENTAL UNITED STATES STRIP ALERT SITES SUPPORTING HOMELAND DEFENSE"

-In his paper he uses mathematical optimization techniques to identify optimum placement of CONUS alert sites to defend potential targets in the U.S.

-The goal of each model he investigates is to provide coverage of these potential targets with the minimum number of alert locations

-Four (4) different models were analyzed, all with varying assumptions on potential alert airfields and potential targets

-MODEL IV is most applicable to alert site selection as it relates to the current BRAC considerations

SUMMARY OF AFIT PAPER ON ALERT LOCATION OPTIMIZATION

MODEL IV: Following is a brief synopsis of the assumptions in Model IV

-Only bases considered for alert locations are airfields currently being used by the ANG, AFR or the active duty Air Force

-Airfields must meet a minimum runway length

-The model is run eight times
  -Considers launch times of 5, 6, 7 and 8 minutes
  -Considers cruise speeds of 9 NM/minute and 8 NM/minute

-Assumes no airspace delays

-66 "Type I" targets are considered: these are areas requiring constant strip alert coverage such as population centers, DOE, NRC and chemical sites

-"Type II" areas are not considered in this model: these are areas requiring coverage when requested by NORAD/NORTHCOM such as POTUS and VPOTUS coverage

SUMMARY OF AFIT PAPER ON ALERT LOCATION OPTIMIZATION

The following slide summarizes the results of the Model IV optimization. For each profile (varying launch time and speed), the optimizing program outputs the minimum number of sites required to provide coverage of the 66 Type I areas. The program also lists the optimum airfields by name – these are listed in Capt. Eberlan's report. Of the 8 profiles considered, Otis is listed as an optimum alert location on 6 of them (Pease is more optimum on 2 of the profiles). None of the models include Bradley, Atlantic City or Burlington as optimum alert locations for the given profiles.

The last slide maps the Model IV optimum alert locations for the baseline profile of 8 minute launch and 9 NM.minute cruise (which yields the 108 critical distance ring). This slide comes directly from Capt. Eberlan's thesis briefing.

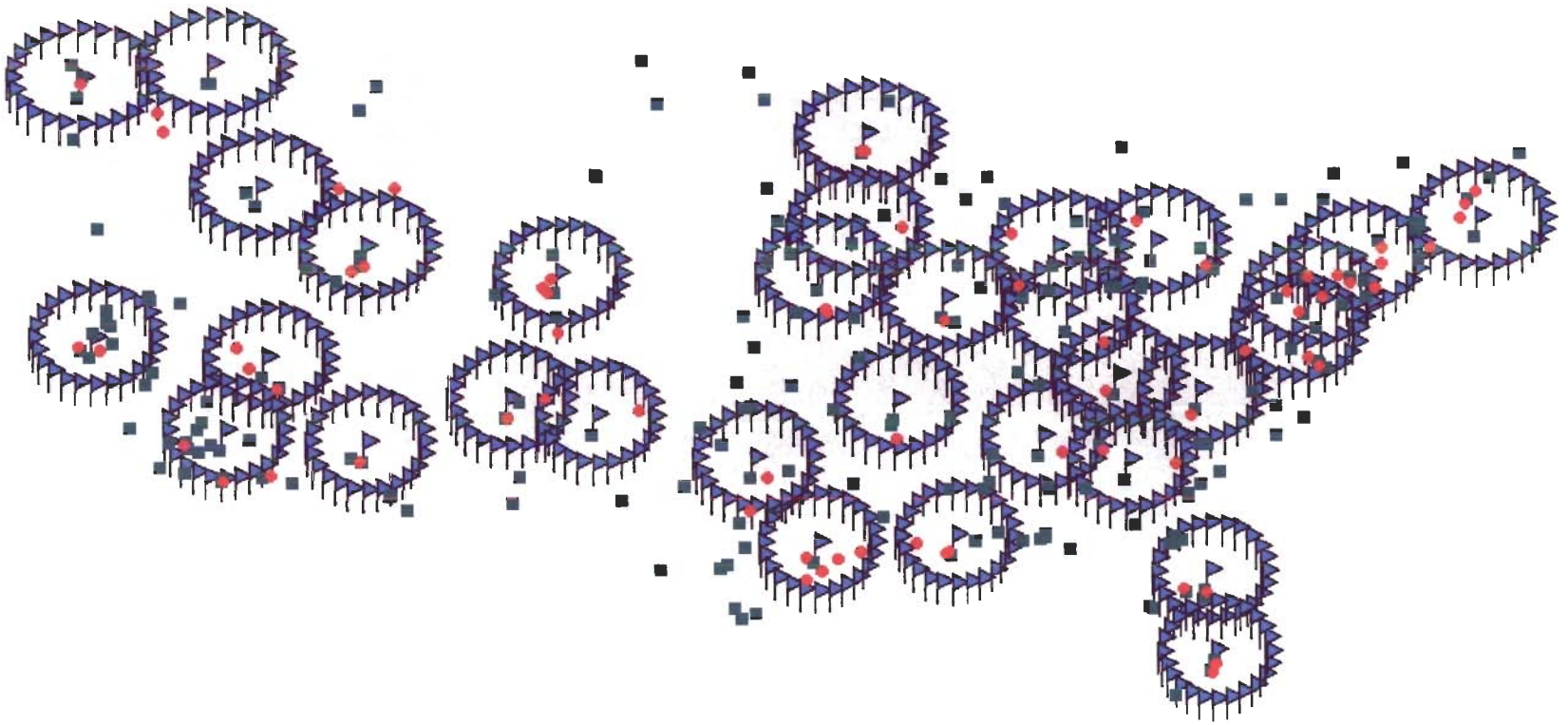
Alert Location Optimization

Summary of Model IV*

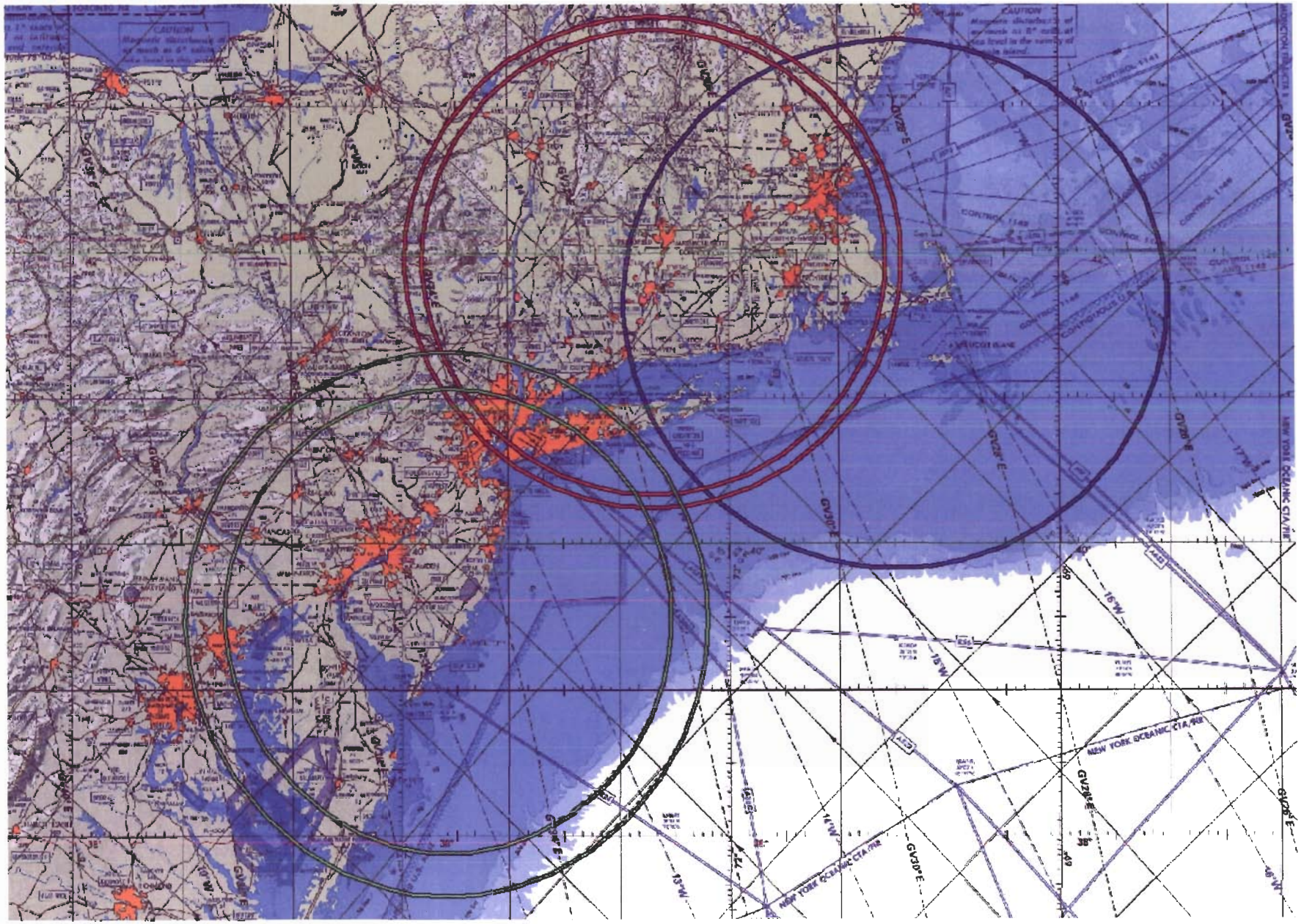
PROFILE (20-minute response)				NORTHEAST BASES IN THE OPTIMUM SITE MODEL				
LAUNCH TIME	ENROUTE SPEED	DISTANCE TRAVELED	OPTIMUM # SITES	OTIS	BRADLEY	ATLANTIC CITY	PEASE	BURLINGTON
8 min	9 nm/min	108 NM	32	X				
7 min	9 nm/min	117 NM	32	X				
6 min	9 nm/min	126 NM	29				X	
5 min	9 nm/min	135 NM	27				X	
8 min	8 nm/min	96 NM	33	X				
7 min	8 nm/min	104 NM	32	X				
6 min	8 nm/min	112 NM	32	X				
5 min	8 nm/min	120 NM	30	X				

*Considers all currently used ANG, AFR and Air Force fields meeting minimum length requirement. Optimum model provides coverage to 66 priority sites in the CONUS.

NETWORK SOLUTION (AF ONLY – Model IV)
Critical Distance = 108NM



10 MINUTE RESPONSE STUDY



10 MINUTE RESPONSE

OVERVIEW

This comparison quantifies the effect of the location of alert facilities with regard to short notice response to threats. It is assumed that an airborne threat exists to either Boston or New York City, that the threat originates from over water and that the threat is proceeding directly toward the center of the city (in this case Logan and JFK). 10 minute fighter response time and associated distances are measured from takeoff and take into account over land restrictions – subsonic until 15 NM feet wet (when applicable).

10 MINUTE RESPONSE

Intercept Assumptions

Profile 1: Max power takeoff and climb to FL200, .95M until 15 NM feet wet, then 1.2M to the 10 minute point. Heading is direct to optimum intercept point.

Profile 2: Max power takeoff and climb to FL200, then .95M to the 10 minute point (assumes 15 NM feet wet is not reached). Heading is direct to optimum intercept point.

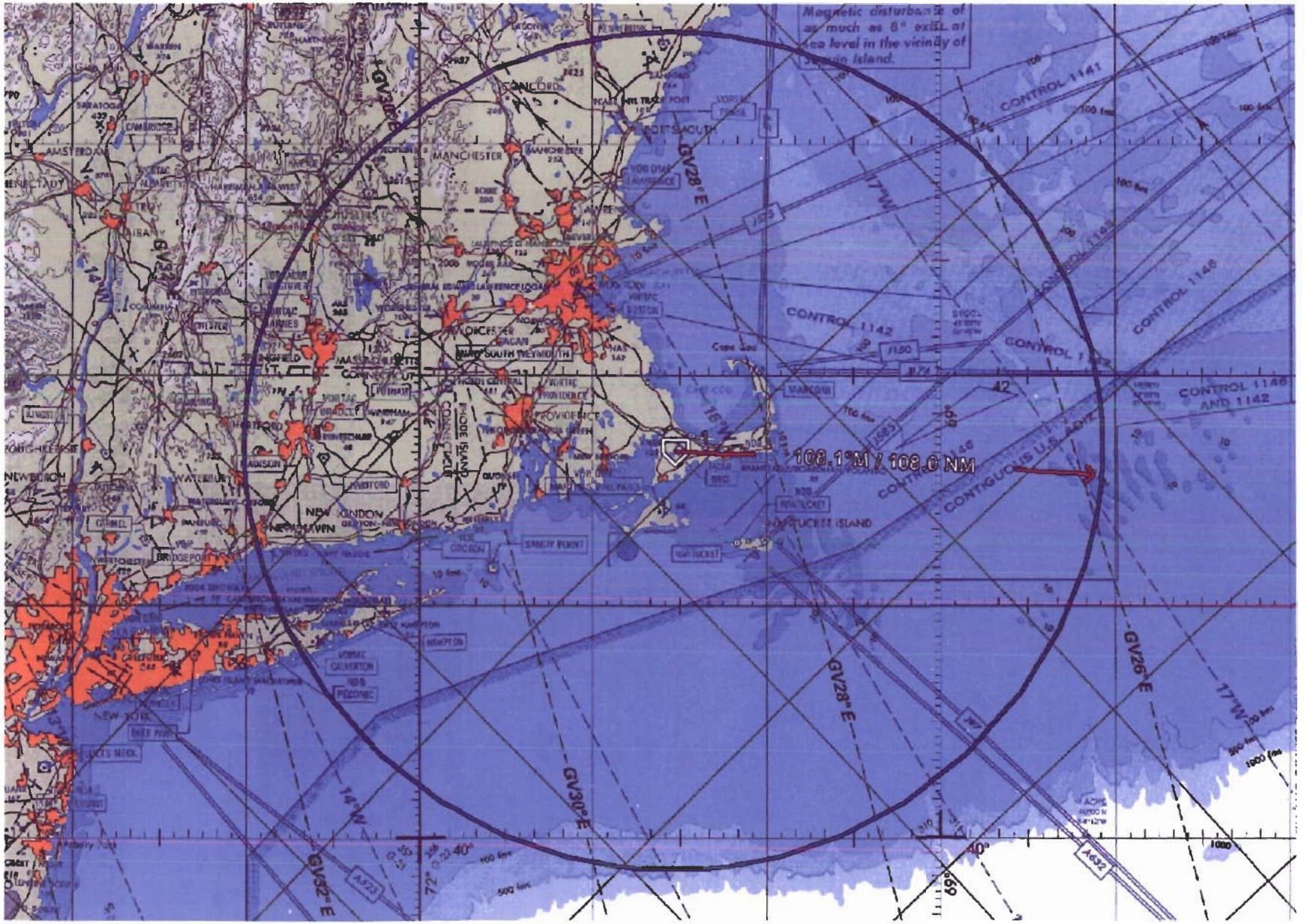
OTIS 10 MINUTE RESPONSE

-For all threat axis considered, fighters from Otis can utilize Profile 1

-Otis fighters are 15 NM feet wet at approximately 42 NM from base

-Distance traveled by Otis fighters on Profile 1: 108 NM

OTIS PROFILE 1 – 108 NM



BRADLEY 10 MINUTE RESPONSE

-For initial headings of approximately 140° to 200°, Bradley fighters can use Profile 1

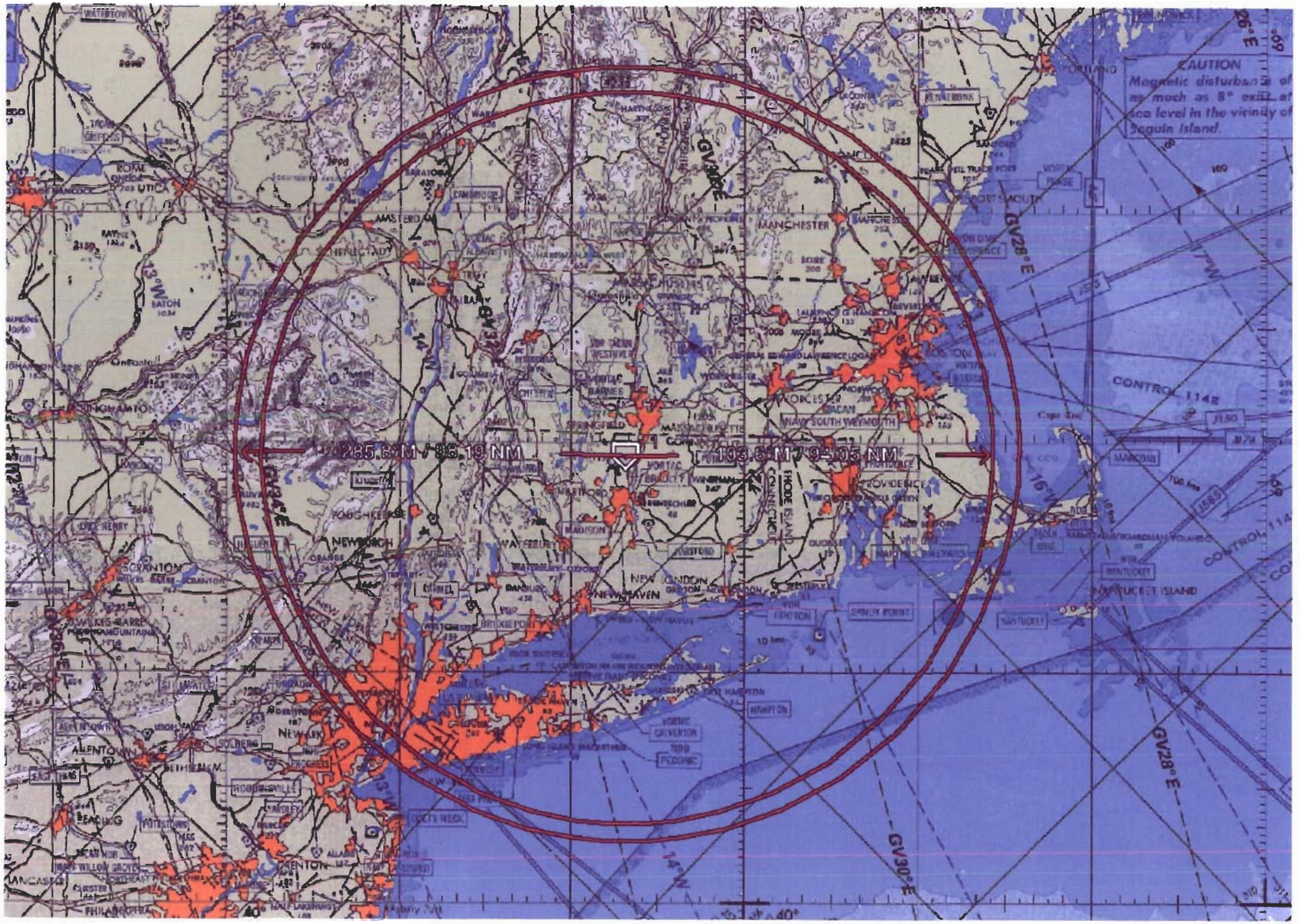
-Bradley fighters are 15 NM feet wet at approximately 79 NM from base

-Distance traveled by Bradley fighters on Profile 1: 98 NM

-For all other initial headings, Bradley fighters must use Profile 2 since they never achieve 15 NM feet wet

-Distance traveled by Bradley fighters on Profile 2: 94 NM

BRADLEY PROFILES – 94/98 NM



ATLANTIC CITY 10 MINUTE RESPONSE

-For initial headings of approximately 070° to 200°, Atlantic City fighters can use Profile 1

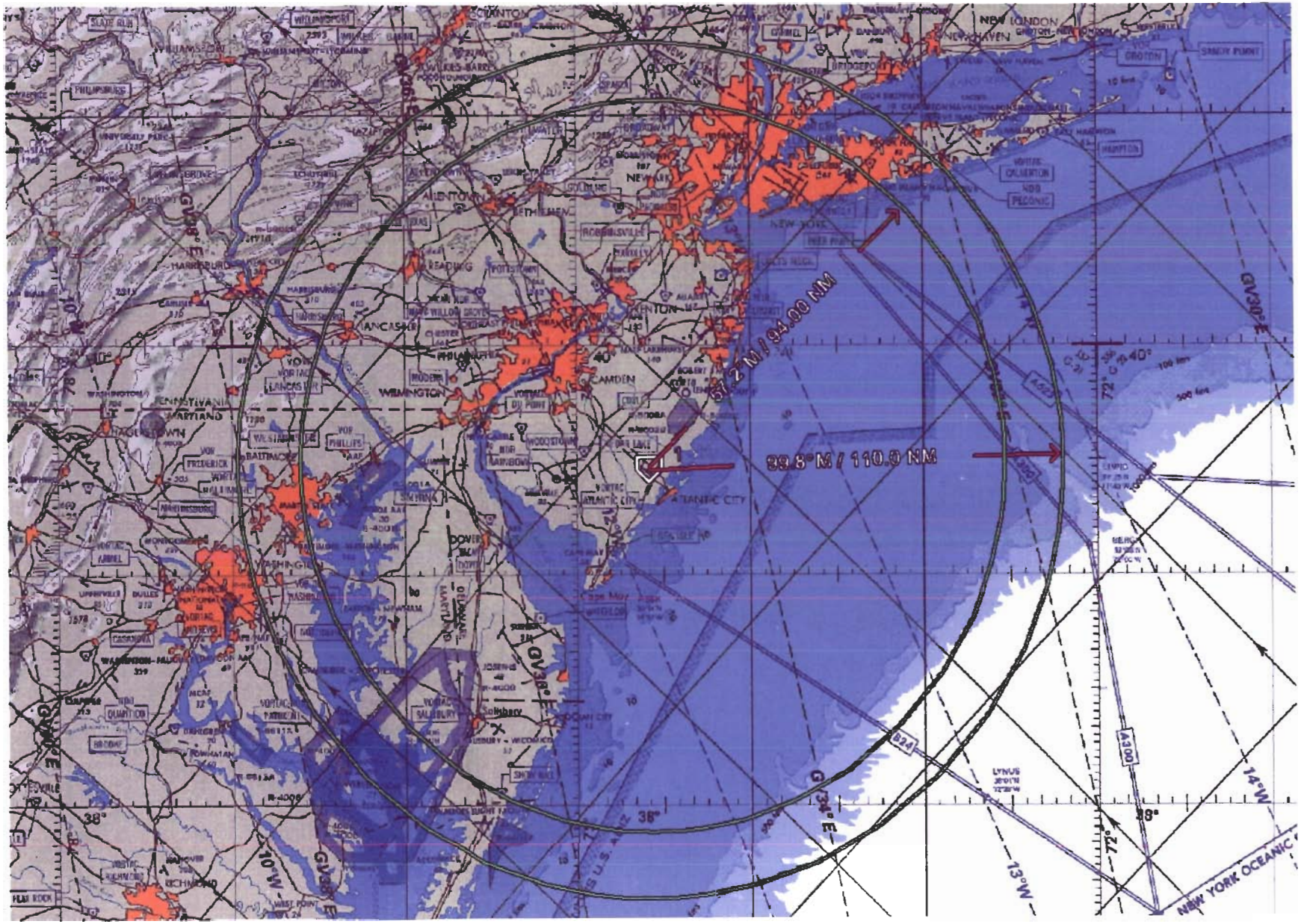
-Atlantic City fighters are 15 NM feet wet at approximately 35 NM from base

-Distance traveled by Atlantic City fighters on Profile 1: 110 NM

-For all other initial headings, Atlantic City fighters must use Profile 2 since they never achieve 15 NM feet wet

-Distance traveled by Atlantic City fighters on Profile 2: 94 NM

ATLANTIC CITY PROFILES - 94/110 NM



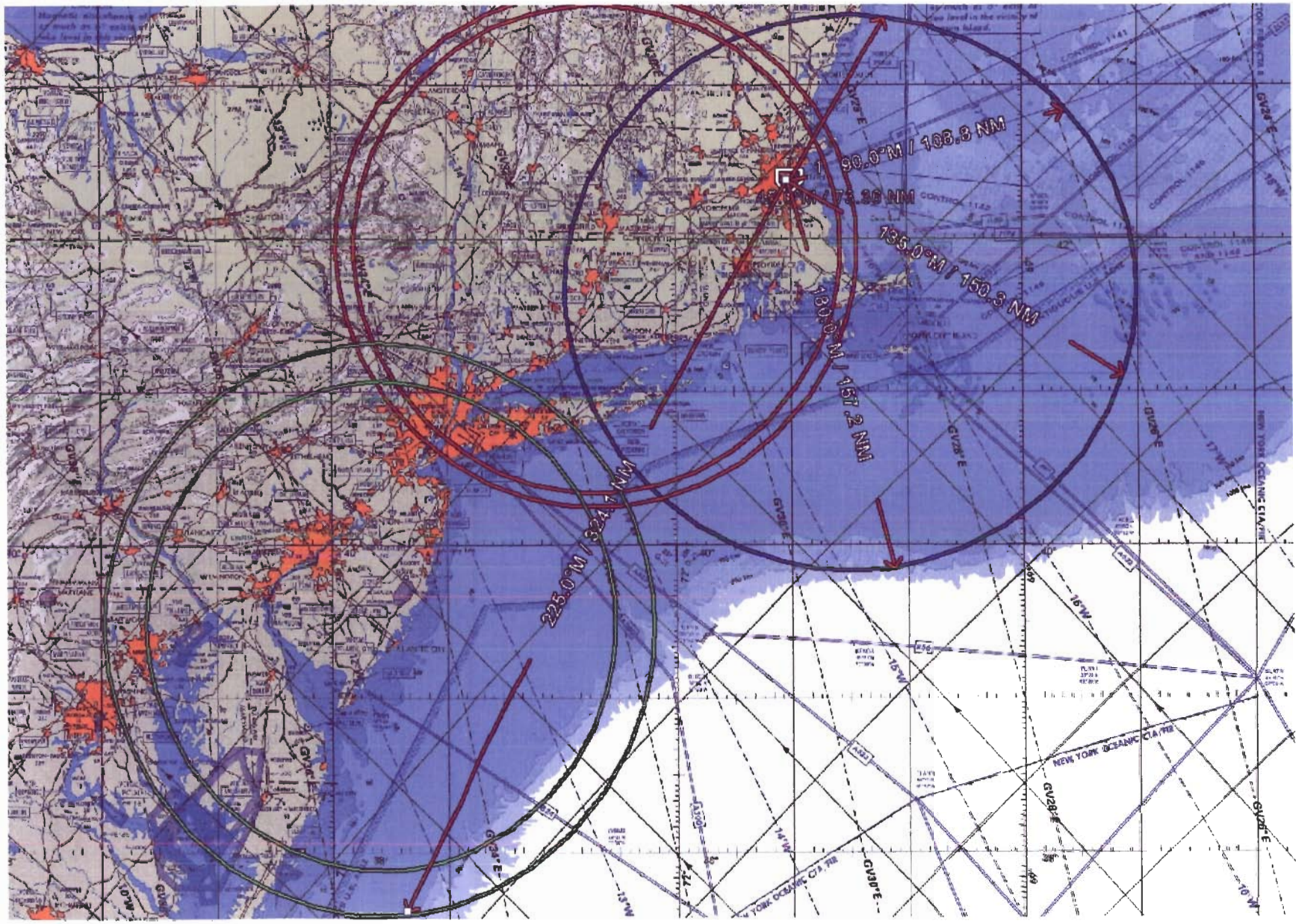
INTERCEPT DATA - BOSTON

Distance away (NM) from Boston that fighters can intercept threat along given axis within 10 minutes from takeoff

THREAT AXIS		FMH	BDL	ACY
BOS	045°	73	18	na
BOS	090°	108	14	na
BOS	135°	150	21	na
BOS	180°	157	56	na
BOS	225°	127	145	324

(na = interceptors do not reach this threat axis in 10 minutes from takeoff)

10 MINUTE RESPONSE - BOSTON



SUMMARY: Otis vs. Bradley

THREATS to BOSTON

045° threat: Otis can intercept 55 NM further away than Bradley

090° threat: Otis can intercept 94 NM further away than Bradley

135° threat: Otis can intercept 129 NM further away than Bradley

180° threat: Otis can intercept 101 NM further away than Bradley

225° threat: Bradley can intercept 18 NM further away than Otis

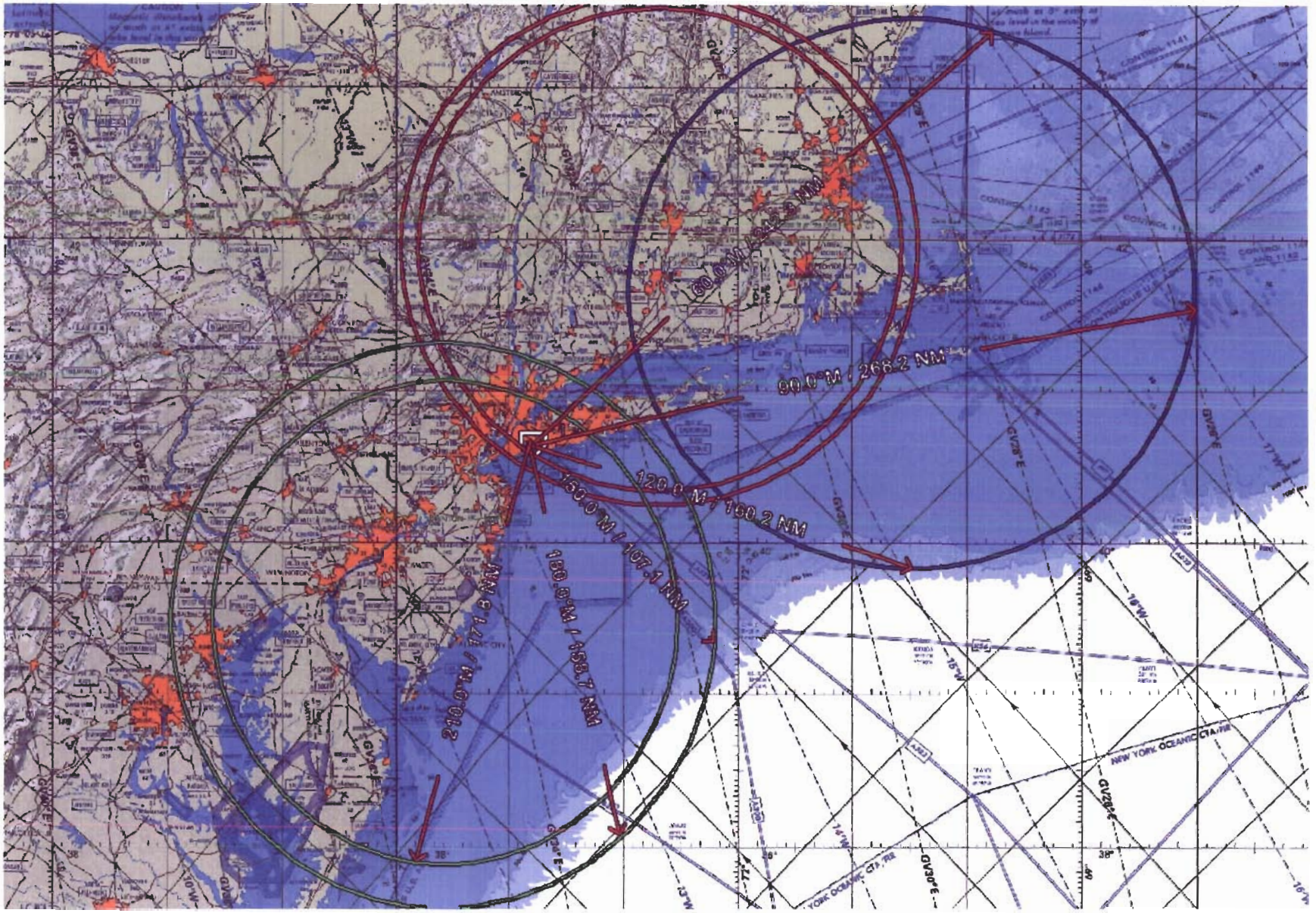
INTERCEPT DATA - NYC

Distance away (NM) from NYC that fighters can intercept threat along given axis within 10 minutes from takeoff

THREAT AXIS		FMH	BDL	ACY
JFK	060°	242	180	14
JFK	090°	268	135	20
JFK	120°	160	70	37
JFK	150°	na	10	107
JFK	180°	na	4	158
JFK	210°	na	3	171

(na = interceptors do not reach this threat axis in 10 minutes from takeoff)

10 MINUTE RESPONSE - NYC



SUMMARY: Otis vs. Bradley

THREATS to NEW YORK City

060° threat: Otis can intercept 62 NM further away than Bradley

090° threat: Otis can intercept 133 NM further away than Bradley

120° threat: Otis can intercept 90 NM further away than Bradley

150° threat: Bradley can intercept threat 10 NM from JFK*

180° threat: Bradley can intercept threat 4 NM from JFK*

210° threat: Bradley can intercept threat 3 NM from JFK*

*Otis does not reach this axis in 10 minutes from takeoff

BOTTOM LINE

Considering over water threats to the eastern seaboard's major metro areas of Boston and New York City, there is no case where a Bradley alert facility provides a better short notice response time than the current alert structure (Otis + Atlantic City). From any over water threat axis, interceptors from Otis and Atlantic City can always intercept airborne threats much further away from these cities than can interceptors operating from Bradley.

Comparing only Otis and Bradley, Otis still provides the best overall coverage of the two bases. Only from a southern threat axis does Bradley have a small coverage advantage, but in all other sectors, Otis provides a distinct and significant advantage in short response coverage.

Viper Intercept to ALLEX (W-102)

Intercept Assumptions

-Time is from immediate takeoff

-Configuration: standard ASA SCL w/2 bags

-Max power takeoff and Max Tech Order climbs

-Route is direct Allex

-Cruise at .95 Mach until gas allows acceleration to 1.2M

-Escort aircraft to Bangor, chase approach and landing, climb out to 10,000', hold for 10 minutes, max range home at FL350

-Assumes NO ATC delays

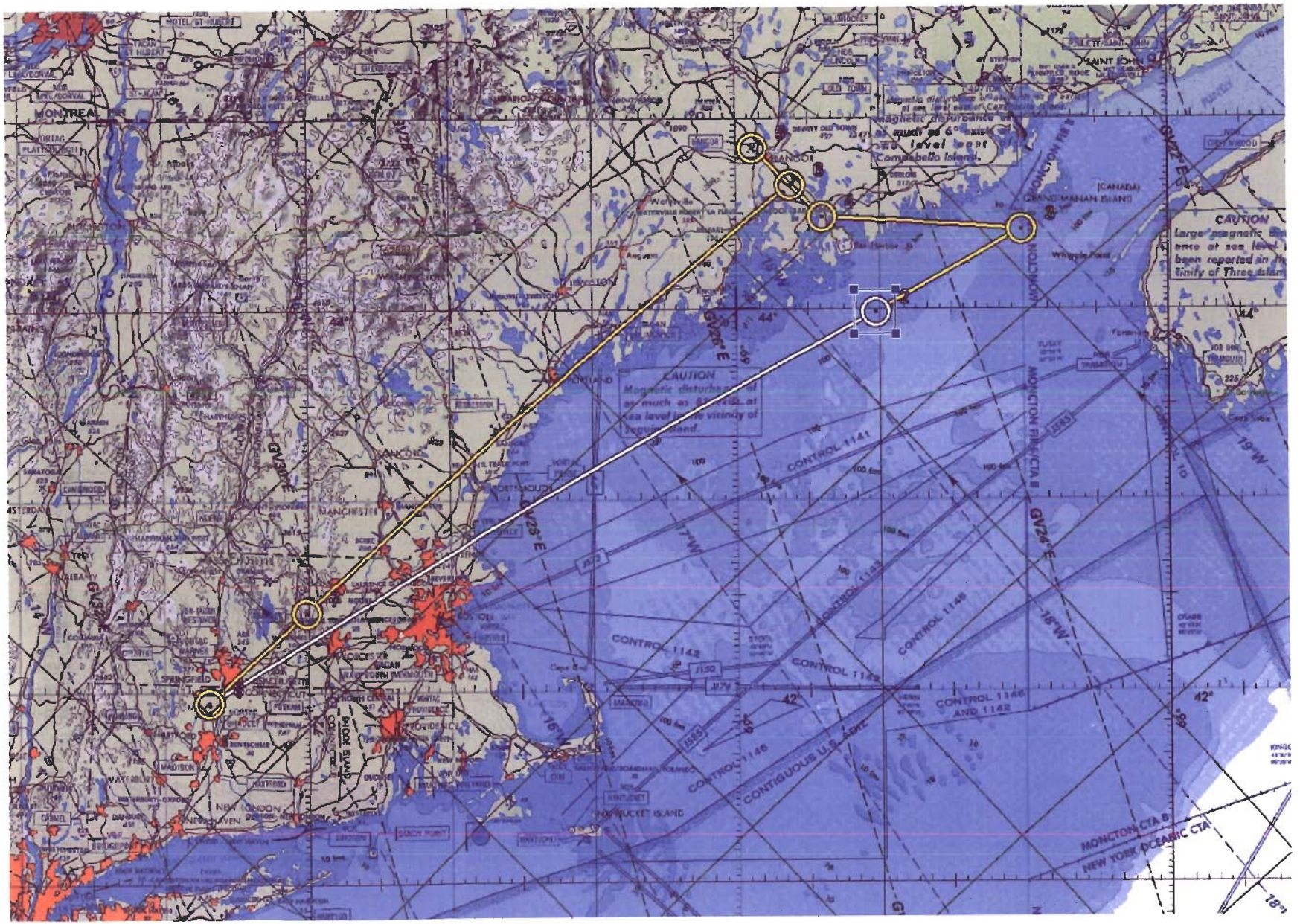
-Assumes VFR weather at home base (no alternate required) and no tanker available

Viper Intercept to ALLEX (W-102)

Fuel Assumptions

-1000# STTO
-Max climb at 42000 #/hr to FL350
-.95 Mach at 6000 #/hr
-1.2 Mach at 30000 #/hr
-max range cruise at 3000 #/hr
-max endure at 2500 #/hr
-approaches cost 10 minutes and 400 #
-Mil climbout at 6000 #/hr

Bradley Viper intercept to ALLEX



Viper Intercept to ALLEX (W-102)

Results

In order to complete the profile without the need to divert for gas, the vipers must stay at .95M until 51 NM from ALLEX, then can accelerate to 1.2 Mach to complete the intercept.

Time to intercept: 30:59
Fuel at intx point: 4700#
Fuel on landing: 1400#

Aviation Week & Space Technology: June 3, 2002

Exercise Jump-Starts Response to Attacks

**WILLIAM B. SCOTT/ROME, N.Y.,
HERNDON, VA, and COLORADO SPRINGS**

On-the-fly innovation, backed by excellent training, 'probably saved many lives' when terrorists struck the U.S.

Sept. 11, 2001: *"American 11 heavy, Boston Center. Your transponder appears to be inoperative. Please recycle. . . . American 11 heavy, how do you read Boston Center? Over.*

Air National Guard F-15s from Otis ANGB, Mass., scrambled in response to the hijacking of American Airlines Flight 11. They flew supersonically to New York, then intercepted about 100 aircraft during the next 5.5 hr.

"Watch supervisor, I have a possible hijack of American 11 heavy. Recommend notifying Norad."
At 8:40 a.m. EDT, Tech. Sgt. Jeremy W. Powell of North American Aerospace Defense Command's (Norad) Northeast Air Defense Sector (NEADS) in Rome, N.Y., took the first call from Boston Center. He notified NEADS commander Col. Robert K. Marr, Jr., of a possible hijacked airliner, American Airlines Flight 11.
"Part of the exercise?" the colonel wondered. No; this is a real-world event, he was told. Several days into a semiannual exercise known as Vigilant Guardian, NEADS was fully staffed, its key officers and enlisted supervisors already manning the operations center "battle cab."
In retrospect, the exercise would prove to be a serendipitous enabler of a rapid military response to terrorist attacks on Sept. 11. Senior officers involved in Vigilant Guardian were manning Norad command centers throughout the U.S. and Canada, available to make immediate decisions.
Marr ordered two F-15 fighters sitting alert at Otis Air National Guard (ANG) Base, Mass., to "battle stations." "The fighters were cocked and loaded, and even had extra gas on board," he recalled.

SCOTT GWILT/ROME SENTINEL

Relying on "skin-paint" radar returns, Air National Guard troops at Norad's Northeast Air Defense Sector tried to locate hijacked aircraft after terrorists silenced the transponders.

Marr called Maj. Gen. Larry Arnold, commander of the Continental U.S. Norad Region (Conar), at Tyndall AFB, Fla., told him about the suspected hijacked aircraft and suggested interceptors be scrambled. Arnold, who also heads the 1st Air Force for Air Combat Command, was in his Air Operations Center preparing for another day of the exercise.

"I told him to scramble; we'll get clearances later," Arnold said. His instincts to act first and get permission later were typical of U.S. and Canadian commanders that day. On Sept. 11, the normal scramble-approval procedure was for an FAA official to contact the National Military Command Center (NMCC) and request Pentagon air support. Someone in the NMCC would call Norad's command center and ask about availability of aircraft, then seek approval from the Defense Secretary--Donald H. Rumsfeld--to launch fighters.

Lt. Col. Timothy (Duff) Duffy, a 102 Fighter Wing (FW) F-15 pilot at Otis ANGB, had already heard about the suspected hijacking, thanks to a phone call from the FAA's Boston Approach Control. He had the call transferred to the unit's command post, grabbed Maj. Daniel (Nasty)Nash, his wingman, and started suiting up. Another officer told Duffy, "This looks like the real thing."

"Halfway to the jets, we got 'battle stations,' and I briefed Nasty on the information I had about the American Airlines flight," Duffy said. "About 4-5 min. later, we got the scramble order and took off."

Also an airline pilot, Duffy had a bad feeling about the suspected hijacking; something didn't feel right. Consequently, he jammed the F-15's throttles into afterburner and the two-ship formation devoured the 153 mi. to New York City at supersonic speeds. "It just seemed wrong. I just wanted to get there. I was in full-blower all the way," he said.

Aviation Week & Space Technology: June 3, 2002

Unknown to Duffy, Nash and every commander being notified at the time, American Flight 11 had crashed into the north tower of the World Trade Center (WTC) about the time both F-15s were taking off. America's terrorist nightmare had begun.

Almost simultaneous with Marr's call to Arnold at Conar, the same hijack notification was being passed by phone to a Norad command center deep inside Cheyenne Mountain near Colorado Springs, and the joint FAA/ Defense Dept. Air Traffic Services Cell (ATSC) colocated with the FAA's ATC System Command Center in Herndon, Va. (*AW&ST* Dec. 17, 2001, p. 96).

"NEADS instantly ordered the scramble, then called me to get Cinc [Norad commander-in-chief] approval for it," said Capt. Michael H. Jellinek, a Canadian Forces (Navy) officer serving as Norad command director that morning. He's also director of plans, requirements and readiness at Norad's Cheyenne Mountain Air Force Station. Fortunately, Maj. Gen. Eric A. Findley, another Canadian and Norad's director of operations, was already in the mountain for the Vigilant Guardian exercise. He quickly approved the fighters' launch.

Back at the NEADS Operations Center, identification technicians were sorting thousands of green dots on their radar scopes, looking for American Flight 11. Since terrorists had turned off the Boeing 767's transponder, FAA controllers could only tell NEADS technicians where the flight had last been seen. The NEADS radar screens showed "primary" or "skin-paint" returns, the raw radar pulses reflected from an aircraft's surface.

Ironically, FAA officials only a few months earlier had tried to dispense with "primary" radars altogether, opting to rely solely on transponder returns as a way to save money. Norad had emphatically rejected the proposal. Still, on Sept. 11, Norad's radars were spread around the periphery of the U.S., looking outward for potential invaders. Inside U.S. borders, very few radars were feeding NEADS scopes.

In essence, technicians were half-blind, trying to separate hijacked airliners from thousands of skin-paint returns. At the time, more than 4,000 aircraft were airborne over the nation, most in the northeast sector, which monitors half a million square miles of airspace.

"We were trying to determine which [radar return] was him. But we couldn't get what we needed just from our scopes," said MSgt. Maureen Dooley, a noncommissioned officer in charge (NCOIC) of NEADS' identification technicians. She and other troops were constantly on the phone with the FAA, airlines and others, looking for clues. "If we could get good last-known-positions and tail numbers, that would help the fighters pick out the right aircraft."

"The biggest task was maintaining track continuity," echoed Tech. Sgt. Jeffrey Lamarche, NCOIC of the air surveillance section. Later, his team thought they had spotted a fifth hijacked aircraft. "This fifth guy made an abrupt turn toward a major city--but it was OK. He was told to land there. It sure had our hearts going and adrenaline pumping. We didn't know what he was doing."

Marr capsulized the tense moments: "The NEADS battle managers get the last known location, estimate [Flight AA11's] speed and find a green dot that's not identified. Almost as soon as it's discovered, it disappears. It's 8:46 a.m. A shocked airman rushes from the computer maintenance room saying, 'CNN is reporting that the World Trade Center has been hit by an airliner.' There are no other missing aircraft. As we watch the TV, another airliner shows up on the screen, aimed for the second tower [9:02 a.m.]. The shocking reality becomes apparent. This is no longer 'an accident.' New York City is under attack."

Flying supersonically, the F-15s were still 8 min. from Manhattan when United Airlines Flight 175 smashed into the WTC's south tower. "Huntress," the NEADS weapons control center, had told Duffy his hijacked target was over John F. Kennedy International Airport. He hadn't heard about the United aircraft yet.

"The second time I asked for bogey dope [location of AA11], Huntress told me the second aircraft had just hit the WTC. I was shocked . . . and I looked up to see the towers burning," Duffy said. He asked for clarification of their mission, but was met with considerable confusion.

In Norad's command center, "a bunch of things started happening at once," Jellinek said. "We initiated an Air Threat Conference [call]. We were getting information about other possible hijackings." Telephone links were established with the NMCC, Canada's equivalent command center, Strategic Command, theater Cincs and federal emergency-response agencies. At one time or another, President Bush, Vice President Dick Cheney, Rumsfeld and key military officers were heard on the open line.

NORAD RESPONSE TIMELINE*

SEPT. 11, 2001

Time — American Airlines Flight 11 - Boston to LA

0840 — FAA (Boston Ctr) notification call to NEADS
0846** — Fighter Scramble Order (Otis Air National Guard Base, Falmouth, Mass., Two F-15s)
0846+ — AA11 hits WTC (World Trade Center 1)
0852 — F-15 fighters airborne - approx 17 min./153 mi. from WTC++

United Airlines Flight 175 - Boston to LA

0843 — FAA notification call to NEADS
0846+ — Fighter Scramble Order (Otis ANGB. Same two F-15s that scrambled for Flight 11)
0852 — F-15 fighters airborne, en route to NYC
0902+ — UA175 hits WTC (World Trade Center 2); Otis F-15s approx 8 min./71 mi. from WTC++

American Flight 77 - Washington/Dulles to LA

0924 — FAA notification call to NEADS
0924** — Fighter Scramble order (Langley AFB, Hampton, VA. Two F-16s)
0930 — F-16 fighters airborne
0937+ — AA77 hits Pentagon; F-16s approx. 12 min./105 mi. from Pentagon++

United Flight 93 - Newark to San Francisco

N/A**** — FAA notification call to NEADS
Langley F-16s already airborne for AA77; now flying CAP to protect D.C.
1003+ — UA93 crashes in Pennsylvania; F-16s over D.C. approx. 11 min./100 mi. from crash site

* All times are Eastern Daylight Time; NEADS is North East Air Defense Sector
** Scramble: Order to get an aircraft airborne asap
**** FAA and NEADS had established open communication line, discussing AA77 and UA93
All data from North American Aerospace Defense Command (Norad)
\+ Estimated: Radar contact lost
++ Flight times calculated at 9 mi./min. (Mach 0.9)

Confusion was rampant, but officers and enlisted troops immediately reverted to their professional roles, trying to sort rumor from fact. Findley and his senior staff in the Norad Battle Management Center told each air defense sector to "generate, generate, generate" sorties--get as many fighters in the air as possible.

AT THE TIME, NORAD had 20 fighters on armed alert throughout the North American continent. Only 14 were in the continental U.S. at seven bases; the rest were in Alaska and Canada. Within 18 hr., 300 fighters would be on alert at 26 locations.

Calls from fighter units also started pouring into Norad and sector operations centers, asking, "What can we do to help?" At Syracuse, N.Y., an ANG commander told Marr, "Give me 10 min. and I can give you hot guns. Give me 30 min. and I'll have heat-seeker [missiles]. Give me an hour and I can give you slammers [Amraams]."

Marr replied, "I want it all." NEADS controllers put F-16s at Langley AFB, Va., on battle-stations alert at 9:09 a.m., prepared to back up the F-15s over New York. But the FAA command center then reported 11 aircraft either not in communication with FAA facilities, or flying unexpected routes. At 9:24, the Langley-based alert F-16s were scrambled and airborne in 6 min., headed for Washington.

By 9:26 a.m., the FAA command center stopped all departures nationwide. At 9:41, American Flight 77 crashed into the Pentagon, elevating tension levels even further. NEADS' Sr. Airman Stacia Rountree, an identification technician, said, "We had three aircraft down and the possibility of others hijacked. We had to think outside the box," making up procedures on the fly. Before the day ended, 21 aircraft across the U.S. had been handled as "tracks of interest."

"We didn't know how many more there were. . . . Are there five? Six? The only way we could tell was to implement Scatana--sanitize the airspace. Get everybody down," said Lt. Col. William E. Glover, Jr., chief of Norad's air defense operations.

Gen. Ralph E. Eberhart, Norad commander-in-chief, was in the Cheyenne Mountain battle center by then. He and his staff suggested, via an open command link, implementing a limited version of Scatana--a federal plan designed to take emergency control of all domestic air traffic and navigation aids.

Transportation Secretary Norman Y. Mineta immediately concurred and gave the order to get all aircraft on the ground as soon as possible. That action probably saved many lives, but without unnecessary, paralyzing restrictions of a full Scatana order.

Mineta's decision--and the military recommendation that triggered it--may have been prompted by a few airline pilots reporting terrorists on the radio, talking about other hijacked aircraft. American Flight 77 had hit the Pentagon, and United Flight 93 was being tracked, heading for Chicago or Cleveland, then Washington, prompting the F-16s' scramble.

"We had all of our armed fighters in the air, but needed more," Marr said. Every unit in the northeastern U.S. was loading F-16s, F-15s and A-10s with any armament available, then being directed to combat air patrols (CAPs) over major cities. Soon, Navy F/A-18s. F-14s and E-2Cs--some from two carriers steaming off the East Coast--were flying CAP and surveillance missions over major cities. Ultimately, Navy P-3s and USAF/ ANG C-130s would be pressed into service, using their normal radars to search for intruders.

At Norad, Glover phoned Arnold, telling him Vice President Cheney had given the authorization to shoot down any threatening aircraft in order to save lives on the ground. "We created a free-fire zone over the nation's capital," Arnold said. "Anyone airborne who did not immediately turn away from the center of town, or who did not land, could be shot down."

When someone--possibly President Bush--ordered the military to a Force Protection Condition Delta wartime posture, Norad commanders ordered massive steel doors be closed, "shutting down Cheyenne Mountain for real," the first time in its 43-year history, an officer said. The FBI had warned that a flight originating in San Diego might be hijacked and headed for a target in Colorado. Another rumor referred to a Ryder rental truck full of explosives and driven by "Arab-looking men" targeting the mountain.

"It didn't make sense, but those phone calls were happening," Glover said. Every rumor was treated as a potential threat.

OVER NEW YORK, Duffy and Nash requested that a Maine-based ANG KC-135 tanker--assigned to support 102 FW training missions that morning--be positioned at 20,000 ft. above Kennedy airport. "Then, we worked on intercepting and visually identifying nearly everything that was in the air for the next five hours," Duffy said.

"I treated this as a combat hop from the moment I saw the towers burning, and that made it easier to deal with . . . actions we might have to take," he added.

Duffy estimated the F-15s intercepted and escorted about 100 aircraft, including emergency, military and news helicopters, plus dozens of private pilots who were unaware of the attacks. Some had seen the smoke over New York and decided to investigate. Nash said the F-15s flew "low-and-slow" to intercept helicopters flying at 500 ft.

When the KC-135 exhausted its fuel load and had to depart, a KC-10 arrived to support the F-15s. Another two Eagles from Otis ANGB joined the first two, flying CAP over New York. Duffy and Nash were directly over the north WTC tower when it collapsed. When they finally returned to Otis, they had been on CAP about 5.5 hr.

Above Washington, F-16s flown by crews of the 119th FW from Fargo, N.D.--which had been pulling Norad alert duty at Langley AFB--were prepared to shoot down United 93, if it came toward the capital city. Instead, passengers rushed the terrorists, causing the Boeing 757 to crash in southwestern Pennsylvania.

MAJ. PHILIP J. MCCARTHY, a weapons controller at NEADS, located an AWACS crew in the southeastern U.S. on a training mission and arranged to reposition it in the Northeast. "We wanted D.C. as the primary area for AWACS, but also wanted him to look into New York," he said. In the confusion of the all-aircraft-grounding, someone told the AWACS to go back to Tinker AFB, Okla., its home base, but McCarthy was able to convince the crew to stay.

At the Herndon ATSC, Col. John Czabaranek and a growing staff of USAF Reserves--many reported, unasked, to help with the crisis--had become a critical communications node, shuttling information among the FAA, Norad, air defense sectors, the White House, Secret Service and other agencies. During the day, ATSC helped organize fighter escorts for Bush's Air Force One. The President was in Sarasota, Fla., when the attacks occurred, but was quickly taken to Barksdale AFB, La., then to Offutt AFB, Neb.

At one point, the Secret Service wanted to get Bush into Cheyenne Mountain, protected by tons of granite, yet well-connected to his staff. However, advisers convinced him that he should "remain visible to the public," an officer said.

"We received tasking from the Secret Service . . . to follow the President and protect him," Conar commander Arnold said in Lockheed Martin's *Code One* magazine. "We were not told where Air Force One was going. We were told just to follow the President. We scrambled available airplanes from Tyndall and then from Ellington [AFB] near Houston, Tex. . . . We maintained AWACS overhead the whole route."

Late in the day, after NEADS confirmed a suspected hijacked airliner from Madrid, Spain, had turned around and was on the ground, Air Force One was cleared to return Bush to Washington. NEADS and the Herndon cell also organized fighter escorts for Attorney General John Ashcroft and other national leaders when deemed necessary.

WHILE ALL MILITARY units responded quickly and professionally on Sept. 11, "citizen soldiers" were typically first on the scene. Air National Guard and Reserve units were called initially, simply because many of them were easier to contact without going through a long, tortuous chain of command. Since then, outmoded procedures have been altered to ensure faster reactions from all units.

"The responsiveness of the Air National Guard [and other] units called into action--and how quickly they all came to the defense of the United States--was phenomenal," said Col. Clark F. Speicher, NEADS vice commander. "Within a couple of hours, many of these units went from normal training to generating armed combat air patrols over many U.S. cities. There may have been a lot of different [armament] configurations out there, but so what." Fighters typically carried Aim-9, Aim-7 or Amraam missiles, and 20-mm. ammunition.

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SENATE ARMED SERVICES COMMITTEE

STATEMENT OF

GENERAL RALPH E. EBERHART, USAF

COMMANDER IN CHIEF

NORTH AMERICAN AEROSPACE DEFENSE COMMAND

BEFORE THE UNITED STATES SENATE ARMED SERVICES COMMITTEE

25 OCTOBER 2001

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SENATE ARMED SERVICES COMMITTEE

Senator Levin, Senator Warner and members of the Committee:

Though the circumstances that led to this hearing are tragic, it is an honor to appear before you to represent the outstanding men and women of North American Aerospace Defense Command (NORAD). Our hearts and prayers go out to those great American heroes who lost their lives or were injured on September 11, 2001, as well as their families and friends.

Our combined U.S. and Canadian response to the unprecedented terrorist attacks on the World Trade Center and the Pentagon was a tribute to the professionalism of our people. We are proud to be part of the national security team now focused on defeating terrorism.

Missions

For 43 years NORAD adapted to the changing threats--transitioning from an initial "air" defense orientation to a broader aerospace dimension--one that provides surveillance and warning of ballistic missile attacks and space events. The unprecedented attacks on 11 September 2001 were a reminder to our Nation of the need to detect, validate and warn of hostile aircraft or missile attack against North America. Proper attack assessment ensures the U.S. National Command Authorities and the Prime Minister of Canada can take appropriate action in response to an attack. Clearly, our ability to provide surveillance and control of U.S. and Canadian airspace remains vital and constitutes a critical component to the defense of North America.

NORAD's mission now has clearly expanded to protect North America against a domestic airborne threat. Prior to 11 September 2001, our air defense posture was aligned to counter the perceived external threats to North America air sovereignty. Within this context, our aerospace control and air defense missions have traditionally been oriented to

detect and identify all aircraft entering North American airspace, and if necessary, intercept potentially threatening inbound air traffic. These threats were generally considered as hostile aircraft carrying bombs or cruise missiles. Based on the recent events, we are now also focused on threats originating within domestic airspace such as hijacked aircraft. While we have adjusted to provide a rapid response to domestic air threats, we continue to execute our previously assigned missions.

NORAD's Response

On 11 September 2001, we quickly transitioned to an interoperable, joint and interagency force consisting of active and National Guard units, U.S. and Canadian military aircraft and U.S. Navy ships. Additionally, we have positioned portable air control radars to more rapidly respond to Federal Aviation Administration (FAA) requests for assistance. We are also working together with FAA representatives to access FAA radar data and now maintain a continuous communications loop.

With the approval of the President and the Secretary of Defense, we now have streamlined the Rules of Engagement for hostile acts over domestic airspace to ensure the safety of our citizens and critical infrastructure. We have increased our alert posture from 20 fighter aircraft standing alert to more than 100 U.S. and Canadian aircraft. These aircraft and aircrews now support the continuous combat air patrols over Washington D.C., New York, as well as random patrols over other metropolitan areas and key infrastructure. They remain on a high state of alert at 26 air bases across the country.

As a result of this heightened posture, our air defense activity has increased significantly. Last year, we scrambled fighter aircraft 7 times (including exercises) from 10 September - 10 October 2000. During the same period this year, we scrambled 41 times, plus diverted 48

fighter patrols from ongoing combat air patrols to assess tracks of interest, for a total of 89 events. Likewise, all of our units supporting Operation NOBLE EAGLE have experienced a significant increase in NORAD-related flying sorties. Normally, our units fly 4-6 sorties a month in support of the NORAD air defense mission. Since 11 September 2001, several of our units such as the one at Otis ANGB in Massachusetts have flown in excess of 100 sorties in the last month (approximately one-third of Otis' entire yearly flying program).

Challenges

From a resource perspective, we must address our manpower shortfalls at the units charged with conducting our aerospace warning and control missions. The Administration's call-up of Reserve and National Guard forces was the right solution. In the near term, we need to ensure we allocate these forces to meet our greatest needs in the field. For the longer term, the execution of our National Military Strategy will hinge on our ability to attract and retain high quality, motivated servicemen and women and civilian employees. As always, our tremendous warfighting capability depends on our people. If we take care of them, they will take care of our mission. Without them, even our most effective weapon systems are of little value. Congress' initiatives to improve military and civilian pay, health care and housing for our professionals in uniform are a step in the right direction. We are very grateful for your continued support in these areas. However, we still have work to do.

Conclusion

NORAD remains committed to protect our homeland in the face of this national tragedy. We believe we will be key to fighting and winning this

new war on terrorism against a faceless, cowardly enemy. To do this, we need to provide the right people and equipment to get the job done and we once again appreciate Congress' continued support.

We are heartened by the ongoing efforts to improve security at our airports. Our hope is that this increased vigilance will deter foul play on the ground and eliminate the need to commit fighters in the air. We should be the last course of action, implemented only after all other protective measures have been tried.

We stand with you and the rest of the Nation to meet every challenge and ensure freedom prevails. I am honored to appear before you and look forward to your questions.

Cost of Base Realignment (COBRA)

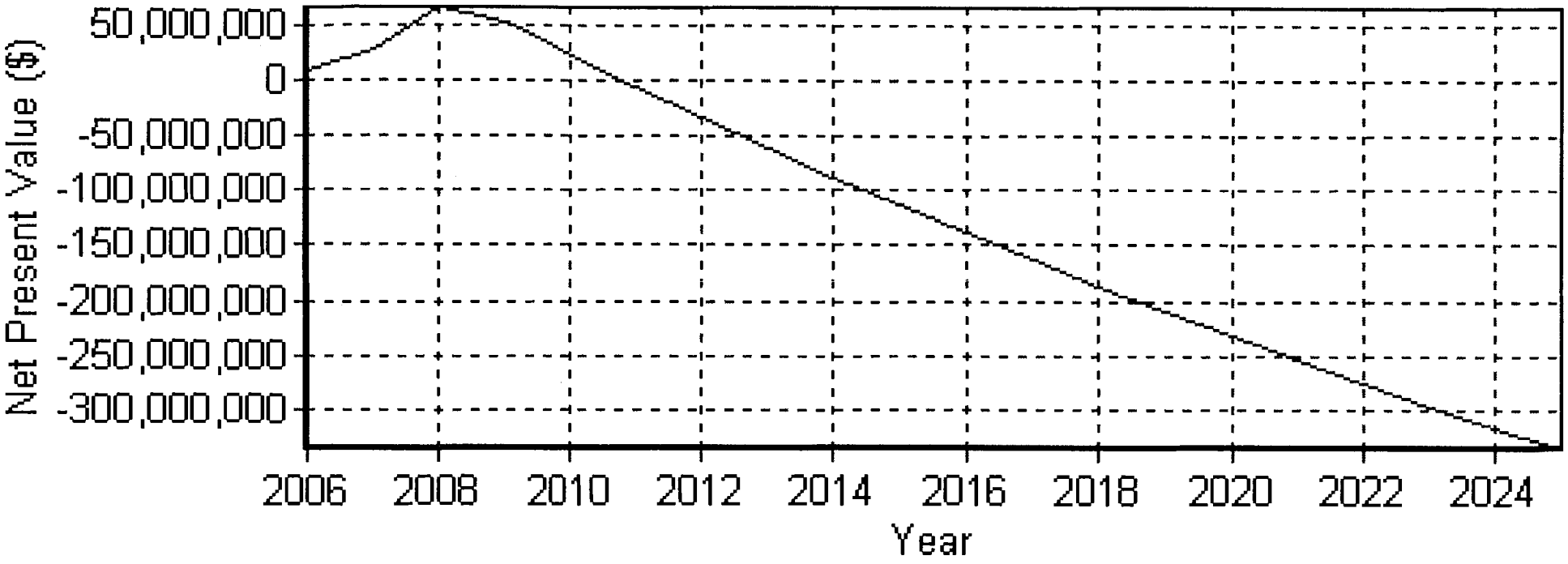
COBRA NET PRESENT VALUES REPORT (COBRA v6.10)
Data As Of 4/27/2005 2:39:59 PM, Report Created 7/25/2005 9:22:50 AM

Department : Air Force
Scenario File : C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA USAF 0044V3 (142c3).CBR
Option Pkg Name: COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA
Std Fctrs File : C:\Documents and Settings\sean.riley\My Documents\BRAC\COBRA\BRAC2005.SFF

Year	Cost($)	Adjusted Cost($)	NPV($)
2006	9,294,686	9,167,230	9,167,230
2007	19,381,763	18,595,317	27,762,548
2008	40,567,754	37,861,531	65,624,079
2009	-15,505,760	-14,077,228	51,546,851
2010	-32,423,133	-28,634,259	22,912,591
2011	-33,561,133	-28,831,981	-5,919,389
2012	-33,561,133	-28,046,674	-33,966,063
2013	-33,561,133	-27,282,757	-61,248,819
2014	-33,561,133	-26,539,646	-87,788,466
2015	-33,561,133	-25,816,777	-113,605,243
2016	-33,561,133	-25,113,596	-138,718,839
2017	-33,561,133	-24,429,568	-163,148,407
2018	-33,561,133	-23,764,171	-186,912,578
2019	-33,561,133	-23,116,898	-210,029,477
2020	-33,561,133	-22,487,255	-232,516,732
2021	-33,561,133	-21,874,762	-254,391,494
2022	-33,561,133	-21,278,951	-275,670,445
2023	-33,561,133	-20,699,369	-296,369,814
2024	-33,561,133	-20,135,573	-316,505,386
2025	-33,561,133	-19,587,133	-336,092,519

COBRA NET PRESENT VALUES CHART (COBRA v6.10)

Data As Of 4/27/2005 2:39:59 PM, Chart Created 7/25/2005 9:24:23 AM



Department: Air Force

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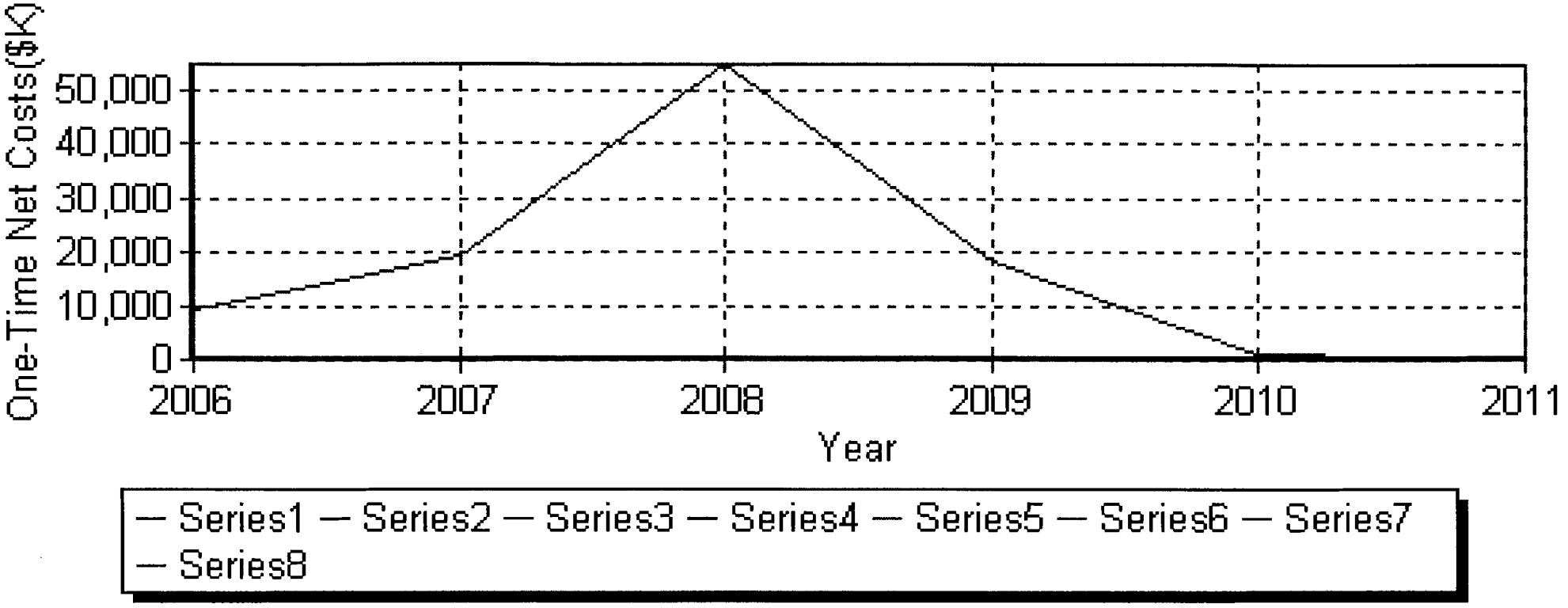
Option Pkg Name: COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA

Std Fctrs File: C:\Documents and Settings\sean.riley\My Documents\BRAC\COBRA\BRAC2005.SFF

TOTAL COBRA REALIGNMEN[illegible]ETAIL CHART (COBRA v6.10)

Data As Of 4/27/2005 2:39:59 PM, Chart Created 7/25/2005 9:24:23 AM



Department: Air Force

Scenario File: C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA USAF 0044V3 (142c3).CBF

Option Pkg Name: COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA

Std Fctrs File: C:\Documents and Settings\sean.riley\My Documents\BRAC\COBRA\BRAC2005.SFF

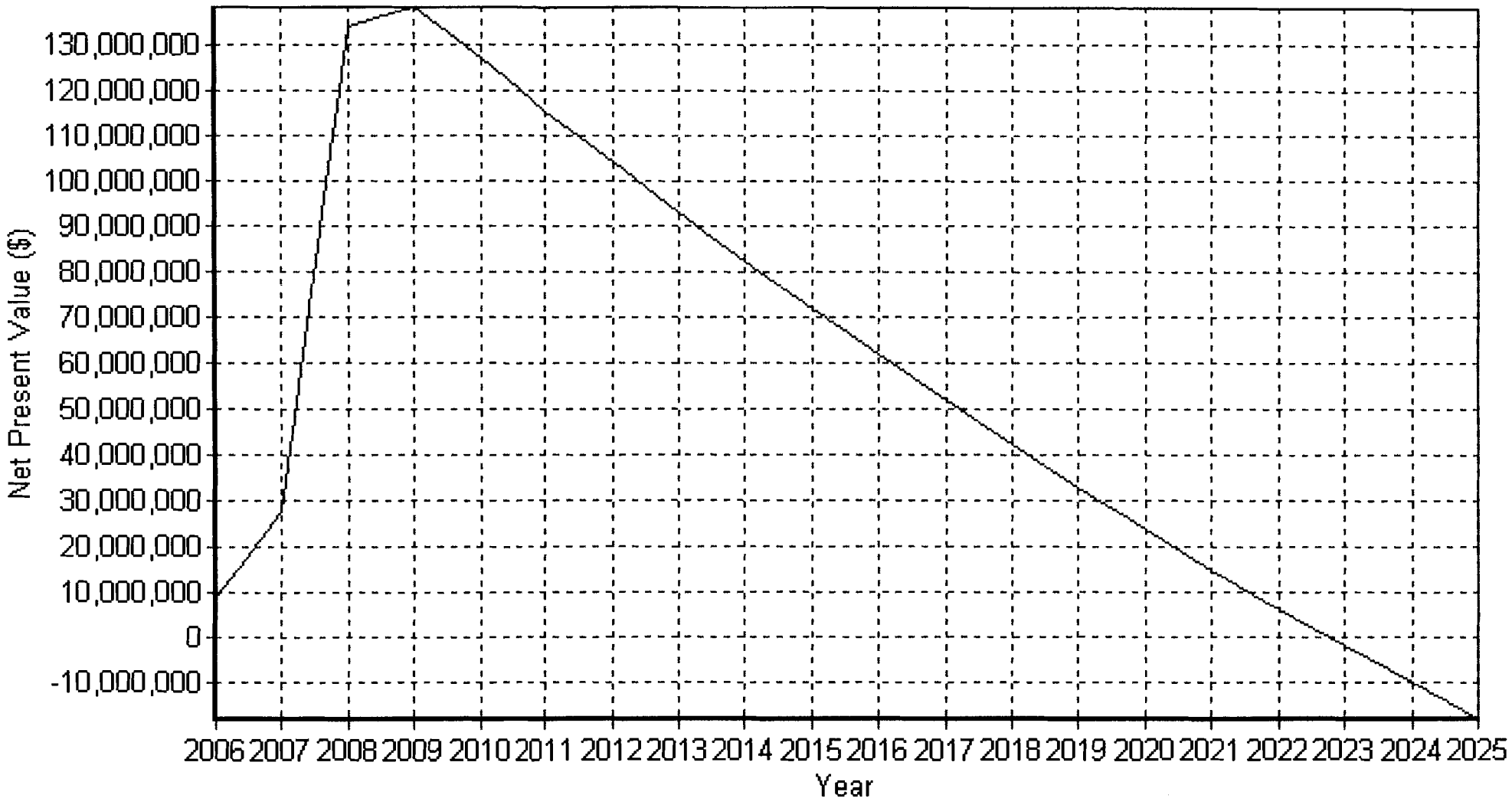
COBRA NET PRESENT VALUES REPORT (COBRA v6.10)
Data As Of 7/12/2005 7:35:31 AM, Report Created 7/25/2005 9:38:01 AM

Department : Air Force
Scenario File : C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA BOS Conv Costs.CBR
Option Pkg Name: COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA
Std Fctrs File : C:\Documents and Settings\sean.riley\My Documents\BRAC\COBRA\BRAC2005.SFF

Year	Cost($)	Adjusted Cost($)	NPV($)
2006	9,294,686	9,167,230	9,167,230
2007	19,381,763	18,595,317	27,762,548
2008	113,703,754	106,118,723	133,881,271
2009	4,494,240	4,080,190	137,961,461
2010	-12,423,133	-10,971,401	126,990,060
2011	-13,561,133	-11,650,212	115,339,847
2012	-13,561,133	-11,332,891	104,006,956
2013	-13,561,133	-11,024,213	92,982,743
2014	-13,561,133	-10,723,943	82,258,800
2015	-13,561,133	-10,431,851	71,826,949
2016	-13,561,133	-10,147,715	61,679,234
2017	-13,561,133	-9,871,318	51,807,916
2018	-13,561,133	-9,602,449	42,205,467
2019	-13,561,133	-9,340,904	32,864,563
2020	-13,561,133	-9,086,483	23,778,080
2021	-13,561,133	-8,838,991	14,939,089
2022	-13,561,133	-8,598,240	6,340,849
2023	-13,561,133	-8,364,047	-2,023,198
2024	-13,561,133	-8,136,232	-10,159,430
2025	-13,561,133	-7,914,623	-18,074,053

COBRA NET PRESENT V. ES CHART (COBRA v6.10)

Data As Of 7/12/2005 7:35:31 AM, Chart Created 7/25/2005 9:38:01 AM



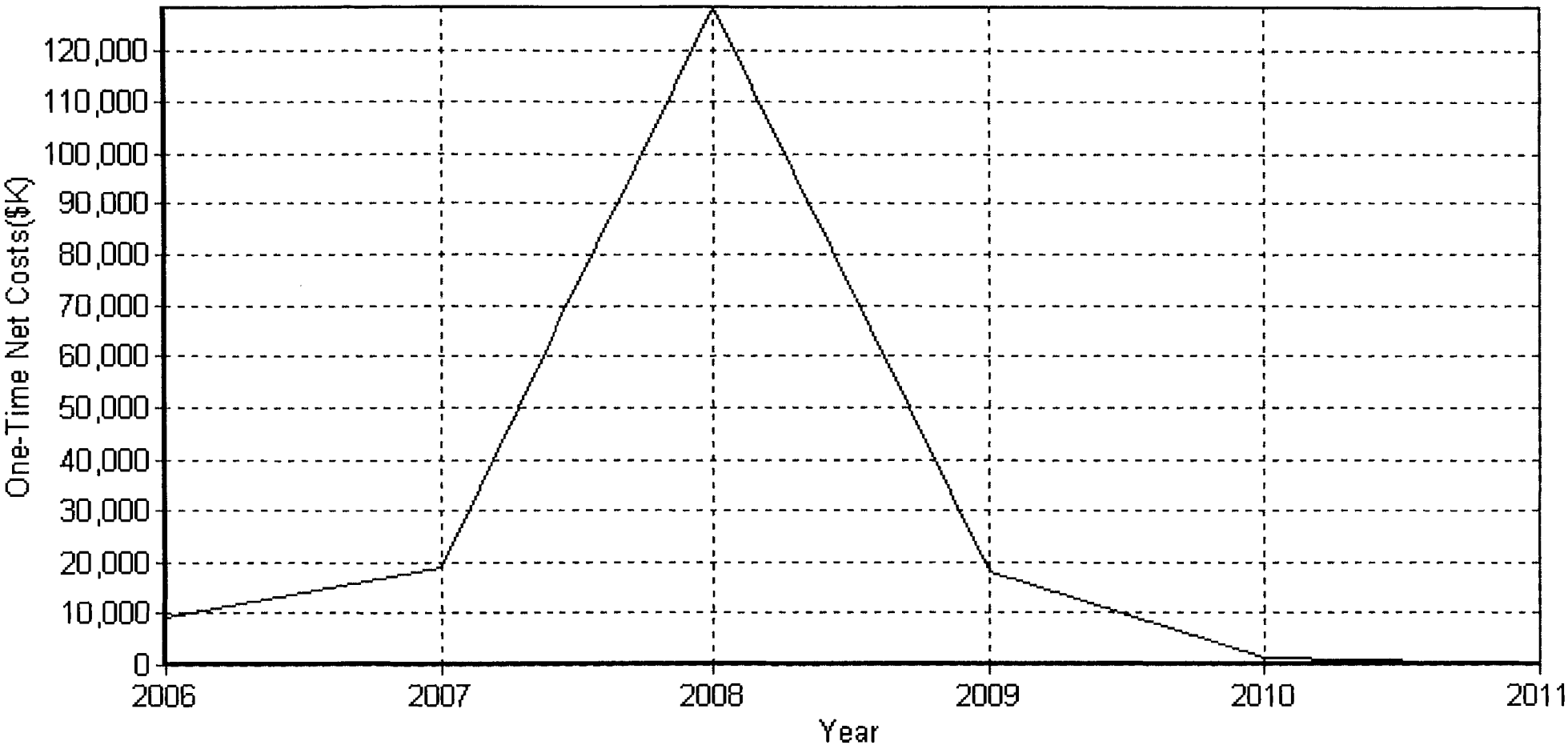
Department: Air Force

Scenario File: C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA BOS Conv Costs.CBR

Option Pkg Name: COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA

Std Fctrs File: C:\Documents and Settings\sean.riley\My Documents\BRAC\COBRA\BRAC2005.SFF

TOTAL COBRA REALIGNME[illegible]ETAIL CHART (COBRA v6.10)
Data As Of 7/12/2005 7:35:31 AM, Chart Created 7/25/2005 9:38:01 AM



Department: Air Force
Scenario File: C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA BOS Conv Costs.CBR
Option Pkg Name: COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA
Std Fctrs File: C:\Documents and Settings\sean.riley\My Documents\BRAC\COBRA\BRAC2005.SFF

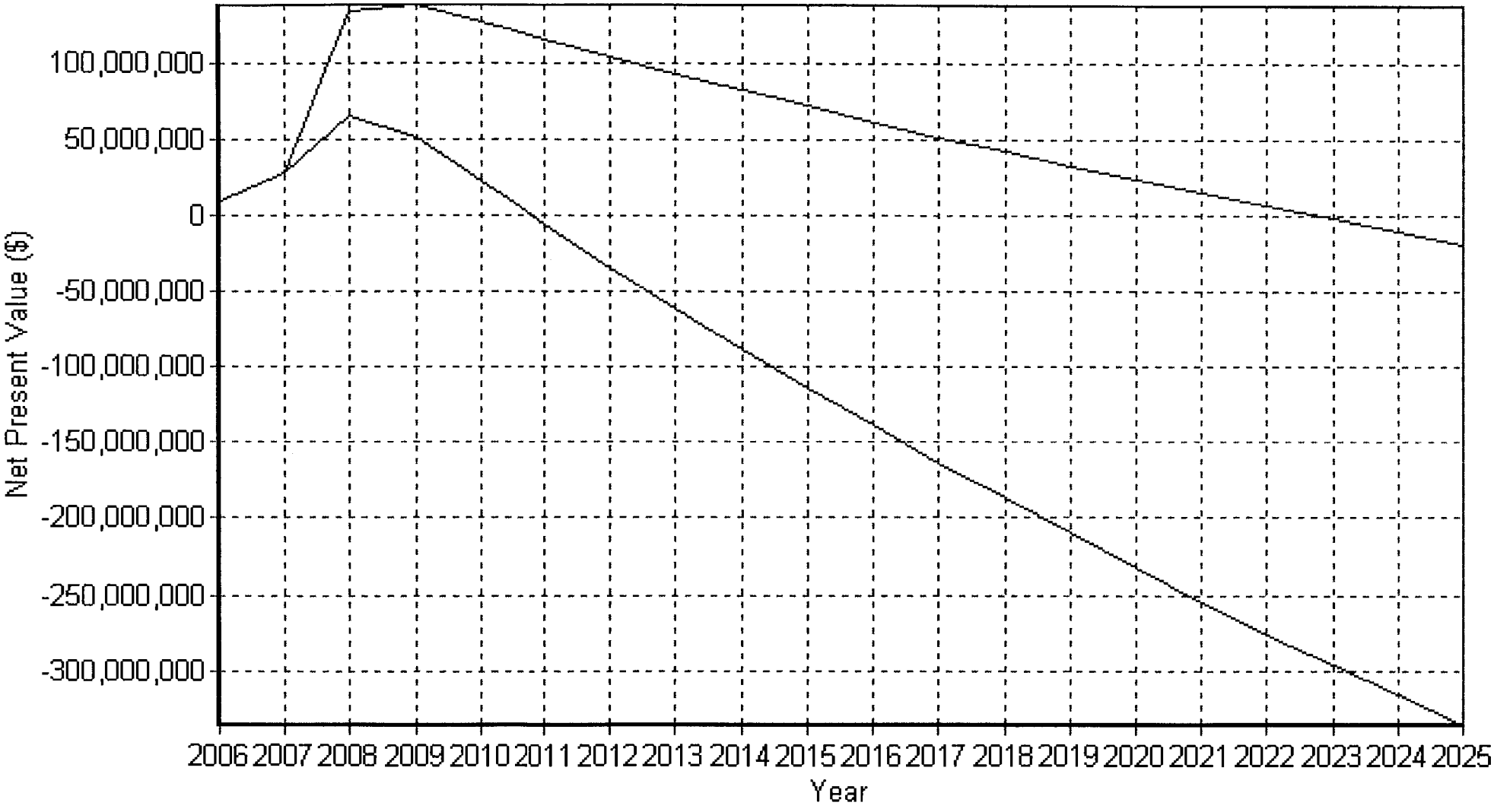
ADDER COMPARISON MULTIPLE NET PRESENT VALUES REPORT (ADDER v6.10)
Report Created 6/30/2005 8:05:26 AM

Year	One	Two
2006	9,167,230	9,167,230
2007	27,762,548	27,762,548
2008	133,881,271	65,624,079
2009	137,961,461	51,546,851
2010	126,990,060	22,912,591
2011	115,339,847	-5,919,389
2012	104,006,956	-33,966,063
2013	92,982,743	-61,248,819
2014	82,258,800	-87,788,466
2015	71,826,949	-113,605,243
2016	61,679,234	-138,718,839
2017	51,807,916	-163,148,407
2018	42,205,467	-186,912,578
2019	32,864,563	-210,029,477
2020	23,778,080	-232,516,732
2021	14,939,089	-254,391,494
2022	6,340,849	-275,670,445
2023	-2,023,198	-296,369,814
2024	-10,159,430	-316,505,386
2025	-18,074,053	-336,092,519

One :COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA
Two :COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA

ADDER COMPARISON MULTIPLE NET PRESENT VALUES CHART (ADDER v6.10)

Chart Created 6/30/2005 8:05:26 AM



ADDER COMPARISON ONE-TIME COST REPORT (ADDER v6.10)
Report Created 6/30/2005 8:05:26 AM

One : COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA
C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA BOS Conv Costs.CBR
Two : COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA
C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA USAF 0044V3 (142c3).CBR

(All values in 2005 Constant Dollars)

Category	Scenario One	Scenario Two	Delta
Construction			
Military Construction	47,466,000	47,466,000	0
Total - Construction	47,466,000	47,466,000	0
Personnel			
Civilian RIF	3,855,206	3,855,206	0
Civilian Early Retirement	674,022	674,022	0
Eliminated Military PCS	94,446	94,446	0
Unemployment	298,217	298,217	0
Total - Personnel	4,921,891	4,921,891	0
Overhead			
Program Planning Support	3,067,363	3,067,363	0
Support Contract Termination	0	0	0
Mothball / Shutdown	363,150	363,150	0
Total - Overhead	3,430,513	3,430,513	0
Moving			
Civilian Moving	18,667,422	18,667,422	0
Civilian PPP	1,703,808	1,703,808	0
Military Moving	246,119	246,119	0
Freight	838,049	838,049	0
Information Technologies	3,177,000	3,177,000	0
One-Time Moving Costs	5,367,000	5,367,000	0
Total - Moving	29,999,398	29,999,398	0
Other			
HAP / RSE	0	0	0
Environmental Mitigation Costs	3,054,000	3,054,000	0
Mission Contract Startup and Termination	0	0	0
One-Time Unique Costs	87,242,000	14,106,000	-73,136,000
Total - Other	90,296,000	17,160,000	-73,136,000
Total One-Time Costs	176,113,802	102,977,802	-73,136,000
One-Time Savings			
Military Construction Cost Avoidances	0	0	0
Military Moving	164,511	164,511	0
One-Time Moving Savings	0	0	0
Environmental Mitigation Savings	0	0	0
One-Time Unique Savings	0	0	0
Total One-Time Savings	164,511	164,511	0
Total Net One-Time Costs	175,949,291	102,813,291	-73,136,000

ADDER COMPARISON SUMMARY REPORT (ADDER v6.10)
Report Created 6/30/2005 8:05:26 AM

Scenario One : C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA BOS Conv Costs.CBR
: COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA
Starting Year : 2006
Final Year : 2008
Payback Year : 2023 (15 Years)
NPV in 2025($K): -18,074
1-Time Cost($K): 176,114

Scenario One Net Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	3,923	13,165	14,932	15,446	0	0	47,466	0
Person	0	0	-3,488	-16,963	-16,963	-16,963	-54,376	-16,963
Overhd	1,171	1,047	-5,424	4,073	3,401	3,401	7,669	3,401
Moving	2,629	3,688	22,336	458	724	0	29,835	0
Missio	0	0	0	0	0	0	0	0
Other	1,572	1,482	85,348	1,480	414	0	90,296	0
TOTAL	9,295	19,382	113,704	4,494	-12,423	-13,561	120,890	-13,561
POSITIONS ELIMINATED								
Off	0	0	1	0	0	0	1	
Enl	0	0	21	0	0	0	21	
Civ	0	0	236	0	0	0	236	
TOT	0	0	258	0	0	0	258	
POSITIONS REALIGNED								
Off	0	0	16	0	0	0	16	
Enl	0	0	61	0	0	0	61	
Stu	0	0	0	0	0	0	0	
Civ	0	0	475	0	0	0	475	
TOT	0	0	552	0	0	0	552	

Scenario Two : C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA USAF 0044V3 (142c3).CBR
: COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA
Starting Year : 2006
Final Year : 2008
Payback Year : 2011 (3 Years)
NPV in 2025($K): -336,092
1-Time Cost($K): 102,978

Scenario Two Net Costs in 2005 Constant Dollars ($K)

	2006	2007	2008	2009	2010	2011	Total	Beyond
MilCon	3,923	13,165	14,932	15,446	0	0	47,466	0
Person	0	0	-3,488	-16,963	-16,963	-16,963	-54,376	-16,963
Overhd	1,171	1,047	-5,424	-15,927	-16,598	-16,598	-52,331	-16,598
Moving	2,629	3,688	22,336	458	724	0	29,835	0
Missio	0	0	0	0	0	0	0	0
Other	1,572	1,482	12,212	1,480	414	0	17,160	0
TOTAL	9,295	19,382	40,568	-15,506	-32,423	-33,561	-12,246	-33,561
POSITIONS ELIMINATED								
Off	0	0	1	0	0	0	1	
Enl	0	0	21	0	0	0	21	
Civ	0	0	236	0	0	0	236	
TOT	0	0	258	0	0	0	258	
POSITIONS REALIGNED								
Off	0	0	16	0	0	0	16	
Enl	0	0	61	0	0	0	61	
Stu	0	0	0	0	0	0	0	
Civ	0	0	475	0	0	0	475	
TOT	0	0	552	0	0	0	552	

F-15 Conversion
(Pilot Training Costs)

F-15 Conversion Cost

Pilots required for 15 PAA F16 squadron at ACY to 24 PAA F15 squadron:

48 pilots needed to man a 24 PAA Fighter Squadron (does not include OSF)
(Source: NGB XOR, Lt Col Kriesel)
10 current/qualified F15 pilots "hired" by ACY for initial Cadre (no cost).
38 current F16 pilots to undergo conversion training.

INITIAL TRAINING: *Actual costs*

Assume four "B Courses" for new pilots and inexperienced F-16 pilots and the rest Track 1A Transition Courses designed for seasoned F-16 pilots transitioning to the Eagle.

Training cost of four F-15 B Course students:

$10,000,000 Total

B Course specifics:

Personnel Funds	$910,166
Operating Funds	$1,609,668
Munitions Funds	$12,871
Total	$2,532,705

(FY 02 Dollars. Source: http://usmilitary.about.com/library/milinfo/blafaircrewcost.htm?terms=air+force+aircrew+initial+training+costs. This is the same source used by Portland and St Louis. Secondary confirmation from Lt Col Kelly, 114th FS/CC Klamath Falls. Third source: 173rd FW OSF/CC, Lt Col Imrich.

Training cost of 34 F-15 TX Course:

$68,000,000 Total

TX Track 1A Course specifics:

173rd OSF/CC stated that B-course costs $2.5M, and TX course is $2.0M

Total of $78,000,00 for training all 38 pilots

Not included in 6 July brief. For info only:

MISSION QUALIFICATION TRAINING (MQT) To declare IOC:

Flying hour costs are included in unit annual operating costs.

The real cost = loss of advanced training at the expense of IOC upgrade training.

Mission Qualification Training cost of 38 F-15 fighter pilots is:

$17,428,320 Total

- Length in training days: 90 calendar days at no TDY cost (home station)
- 11 syllabus sorties for the student at 13.6 flight hours (not including non-effective sorties or attrition losses)
- 24 direct support sorties of aircraft to fight with and against the student at 30.5 flight hours
- Average cost per flight hour currently at Otis ANGB - $10,400
- Total minimum cost of flying hours dedicated to one student = $458,640

Multiply by 38 projected MQT trainees = $17,428,320 Total

OTIS ANGB CURRENTLY HAS A PROVEN TEAM OF 26 PROFESSIONAL F-15 FIGHTER PILOTS THAT HAS THE FOLLOWING TOTAL UPGRADE QUALIFICATIONS:

16 INSTRUCTOR PILOTS
17 MISSION COMMANDERS
23 FOUR SHIP FLIGHT LEADERS
25 TWO SHIP FLIGHT LEADERS
4 WEAPONS SCHOOL GRADUATES
2 FUNCTIONAL CHECK FLIGHT PILOTS
24 NIGHT VISION GOGGLE PILOTS
20 PILOTS WITH COMBAT TIME

COST: 0

Base Operating Support
(BOS)

OVERVIEW ANALYSIS
BASE OPERATING COSTS
102 FW

OPERATIONAL COSTS

				LABOR			SUPPLIES/EQUIPMENT			
				UNITS	COST PER UNIT	TOTAL LABOR	UNITS	COST PER UNIT	TOTAL SUPPLIES	TOTAL BOS
A	CIVIL ENGINEERING									
		1	ELECTRICAL TITLE V	11	73,648	810,128	1	54,230	54,230	864,358
			ELECTRICITY BOS				1	412,053	412,053	412,053
		2	ROADS AND GROUNDS TITLE V	10	57,911	579,110	1	136,955	136,955	716,065
										0
		3	STRUCTURES TITLE V	6	59,555	357,330	1	48,914	48,914	406,244
										0
		4	MECHANICAL TITLE V	4	65,689	262,756	1	32,613	32,613	295,369
			TITLE 32	1	65,689	65,689				
			NATURAL GAS BOS				1	372,597	372,597	372,597
		5	ENGINEERING TITLE V	6	95,130	570,781	1	68,355	68,355	639,136
										0
		6	MATERIAL CONTROL TITLE V	2	63,818	127,636	1	165,652	165,652	293,288
										0
		7	WORK CONTROL TITLE V	1	52,383	52,383			0	52,383
										0
		8	FIRE DEPARTMENT TITLE V	49	75,760	3,712,240	1	85,000	85,000	3,797,240
										0
		9	WWTF TITLE V	4	76,771	307,084	1	28,347	28,347	335,431
				94						
B	PMEL									
			TITLE V	26	71,741	1,865,266				1,865,266
C	TRANSPORTATION									
		1	TITLE V	7	63,524	444,668	1	132,826	132,826	577,494
			TITLE 32	7		0			0	
D	SECURITY									
		1	SECURITY AGREEMENT (17 personnel)	1	831,000	831,000	1	20,000	20,000	851,000
			TITLE V			0				
			TITLE 32	24						
			TITLE 10	18						
E	OPERATIONS									
		1	WILDLIFE ABATEMENT	1	35,000	35,000				35,000
			TITLE V (AIRFIELD SUPPORT)	3	63,550	190,650		1	65,300	255,950
			TITLE 32 (AIRFIELD SUPPORT)	5	63,550	317,750				317,750
			AIR TRAFFIC CONTROLLERS (SUPPORT)	1	180,000	180,000				180,000
			NAVAIDS CONTRACT (AIRFIELD SUPPORT)	1	509,721	509,721				509,721
			WEATHER OBSERVER CONTRACT	1	281,000	281,000				281,000
F	EOD	1	TITLE 32	1	80,000	80,000				80,000
			AGR	1	91,000	91,000				91,000
G	POL	1	TITLE 32	8	79,467	635,736				
H	MUNITIONS STORAGE									
		1	TITLE 32	1	79,467	79,467				
I	SUPPORT/MISC									
			TITLE V	20	63,818	1,276,360				1,276,360
			IT				1	42,500	42,500	42,500

TOTAL TITLE V PERSONNEL:	149

TOTALS LABOR AND SUPPLIES:	13,662,755	1,665,342	15,328,097

CAPITAL COSTS

1	AVERAGE ANNUAL FACILITY REPAIRS AND CONSTRUCTION OUTLAYS:	6,758,150

TOTAL BOS COSTS:	**$22,086,247**

Discussion of Overview Analysis Base Operating Costs for the 102FW

Currently the 102FW has, in addition to its alert mission, a role as host to several other tenants on the Massachusetts Military Reservation (MMR).

In that role, the 102FW provides several core joint use services including electrical distribution, road maintenance, water and wastewater treatment provision, airfield operations and security, and PMEL services.

While some direct expenses are billed out to some of the larger tenants, the majority of expenses associated with this Base Operating Support role (BOS) are absorbed by the 102FW's Operations and Maintenance (O&M) budget in its role as host.

As such, if the 102FW were to depart the MMR, these BOS costs would need to be absorbed by another entity, most likely the new host, or spread out over the remaining tenants. In either event, it is necessary to quantify those costs in order to gain a fair assessment of the monetary impact of closing the 102FW.

This analysis has been developed to depict the current BOS costs as described above. A distinction is made between annual operational costs, which include labor, supplies, service contracts, and utilities, versus capital costs for facility modernization and construction. The following describes in further detail elements of the spreadsheet.

OPERATIONAL COSTS

A. Civil Engineering:

Currently there are 94 personnel in Civil Engineering performing BOS related activities and functions.

1. The Electrical shop repairs and maintains electrical operations for CG housing and operations, the waste water treatment plant, numerous lift stations, navigational aids, communications, 10 emergency generators, the airfield, as well as its own operations. There are 610 electrical transformers, 2068 utility poles and 372,636 lineal feet of electric utility lines, 13,800 feet of airfield approach lighting, 37,000 lineal feet of runway lighting, and 120,000 lineal feet of taxiway lighting on the MMR.

2. The Roads and Grounds shop is responsible for snowplowing, mowing, runway sweeping and de-icing. There are 144,013 lineal feet of roadways, 388,167 square yards of airfield runways, 502,605 square yards of airfield aprons, 295,614 square yard of airfield taxiways, and 8,234 square yards of driveways.

3. The Structures Shop takes care of repairs to the runway, taxiway, signage, and the exterior of buildings. In addition to the statistics described previously, there are 208 total mission and BOS buildings serviced by the structures shop.

4. The Mechanical Shop controls repairs to water and wastewater distribution systems, flushing fire hydrants, water flow tests, and heating, ventilation, and air conditioning. In addition to previously mentioned statistics, there are 350 fire hydrants on the MMR.

5. Engineering includes in house design and project management personnel responsible for Facilities Sustainment, Restoration, and Modernization (FSRM) and Military Construction (MilCon) projects. Currently there are 85 BOS related projects in the pipeline for the next six years, as well as some 20 others, which will be developed during that time period.

6. Material Control includes personnel who control supply and equipment ordering and distribution.

7. Work Control processes all written and verbal work order requests. For FY 04 5,790 BOS and mission work orders were processed and serviced.

8. The Fire Department responds to all emergency calls involving all tenants on the MMR. In FY 04 there were 866 responses and 59 mutual aid calls to surrounding towns. Currently the Fire Department services some 2.4 million square feet of facilities on the MMR.

9. The Waste Water Treatment Facility processes all water and wastewater treatment needs for all MMR tenants. There are 303,204 lineal feet of sewage main lines, and 520,027 lineal feet of water main lines. In FY 2004 48.4 million gallons of discharge were treated and 92.9 million gallons of water produced for MMR tenants.

B. Precision Measurement and Equipment Laboratory (PMEL):

1. There are 26 personnel responsible for PMEL work order requests supporting a variety of tenants. Currently our PMEL laboratory services 25 other Air Force Units in addition to the local Army and Coast Guard units.

C. Transportation:

1. 7 Title V (BOS) employees and supply and services costs associated with all repairs and maintenance of equipment assigned to the BOS function. Such equipment includes fire apparatus, snowplows and related equipment for roads and runways, and CE vehicles and grass cutting equipment for roads, runways, and acreage.

D. Security:

1. The 17 contracted individuals assigned to provide 24-hour security for airfield operations and various other BOS related functions.

E. Airfield Operations:

1. Listed are the Annual Wildlife Abatement Contract, and the Title V and Title 32 personnel who directly support the airfield. Also included, are the Annual Air Traffic Controller Contract, Navigational Aids Contract, and Weather Observer Contract.

F. Explosive Ordnance Disposal (EOD):

1. Two fulltime personnel assigned to provide EOD operations. Currently our EOD function services the 104th FW, the Army, 6th SWS, the 23d SOPS, and the Coast Guard, as well as a multitude of local entities in Southeastern New England.

G. Fuels:

1. The personnel associated with the fuels management program. Currently the 102d FW provides Petroleum Oil Lubricant (POL) services for the Army, Coast Guard, and the Air Force Center for Environmental Excellence (AFCEE).

H. Munitions Storage:

1. Personnel responsible for the storage of munitions. Currently the 102d FW service 6 tenants in this area.

I. Support:

1. Reflects the balance of uncategorized Title V positions in the areas of accounting, management, procurement, personnel, secretarial, information technology, communications, and environmental. In the communications area, there are 468,950 lineal feet of communications and conduit in addition to the local switch that needs to be maintained.

CAPITAL COSTS

1. The total monetary value of all FSRM (facilities sustainment, restoration, and modernization) projects was well as Military Construction projects for BOS (base operating support) facilities beginning in FY 04 and going out through FY 09 was reviewed.

An average was then taken to arrive at the $6,758,150 figure provided. This represents an estimate of what a typical yearly BOS outlay in FSRM and Milcon would be for either Otis or any host assuming its BOS responsibilities.

USCG Leave Behind Costs

OTIS ANG
BASE OPERATING SERVICES

		Total 102nd Facility Engineering PAL (For reference only)	102nd Facility Engineering "BOS apportionment"	units	Cost per Unit ($K)	Personnel Cost	Supplies / Eqpt / Utilities / Contract Costs ($K) (FY04)	Total ($K)
A. Facility Engineer Cost								
1	Electrical	13	11	FTE	80	$880	$54	$934
2	Roads & Grounds	17	10	FTE	80	$800	$137	$937
3	Structures	10	6	FTE	80	$480	$49	$529
4	Mechanical	9	5	FTE	80	$400	$33	$433
5	Material Control	4	2	FTE	80	$160	$166	$326
6	Work Control	2	1	FTE	80	$80	$0	$80
7	Fire Department	57	49	FTE	80	$3,920	$85	$4,005
8	WTP & WWTP	4	5	FTE	80	$400	$28	$428
9	POL	9	5	FTE	80	$400	?	$400
B. Utility Costs								
1	Electricity						$412	$412
2	Natural Gas						$373	$373
C. AFC43 Design Costs								
1	Engineering Staff	11	6	FTE	80	$480	$68	$548
D. Transportion								
1	Motor Pool	?	7	FTE	80	$560	$133	$693
E. Security								
1	Security Agreement Contract						$250	$250
F. Air Field Operations								
1	Wild Life Abatement					$35	$0	$35
2	Airfield Manager / staff	8	4	FTE	80	$320	$0	$320
3	Air Traffic Controller					$350	$0	$350
4	Nav Aids					$350	$0	$350
G. Support / Misc								
1	See "Word" Document	21	18	FTE	80	$1,440	$28	$1,468
H. Annual AFC43 Maintenance								
1	Typical Year between 2M to 4M.	FY04 at $4078K					$4,078	$4,078
I. AC&I Costs								
1	See "Word" Document							
Total		165	129	FTE		$11,055	$5,894	$16,949

Discussion of OTIS ANG Base
Base Operating Cost Summary
(i.e. Excel spreadsheet: BRAC.xls)

A. Facility Engineering Cost

1. Electrical: Includes labor and material costs for performing both high voltage and low voltage electrical repairs and maintenance. If 102nd operations leave, high voltage electricians would still be required to manage approximately 600 electrical poles for CG housing and operations, the Water Treatment Plant (WTP), Waste Water Treatment Plant (WWTP), numerous lift stations, Nav Aids, Comms, and approximately 10 emergency generators.

2. Roads and Grounds: 102nd currently does not contract out any mowing, snowplowing, or runway sweeping. All efforts are performed with in-house labor.

3. Structures Shop: Responsible for repairs to runway, taxiway, signage and exterior of buildings

4. Mechanical: Responsible for repairs to water and waste water distribution system, flushing fire hydrants, water flow tests, etc.

5. Material Control: Personnel who control Supply Distribution.

6. Work Control: Second gentleman at the Help Desk to handle increased call volume.

7. Fire Department: 102nd currently has 57 fire fighters. 43 are funded by the 102nd, 8 are funded by the Army National Guard, and 6 are funded by the Coast Guard. It is estimated that the number of Fire Fighters could be reduced to 49 if the department existed without the 102nd fighter wing.

8. WTP and WWTP. Those 2 plants are currently run with 4 technicians. However, a recent state inspection recommended that those plants are staff with 5 employees.

9. POL: The POL shop is currently staff for 9 members, and they are responsible for a 1M gallon fuel farm that is comprised of a 600K and 400K tank

B. Utility Costs

1. Electricity: Educated guess on quantity of electrical bill that is apportioned to Base Operating Services.

2. Natural Gas: Educated guess on quantity of natural gas bill that is apportioned to Base Operating Services.

C. AFC43 Design Costs

1. Engineering Staff: 102nd currently has 11 engineering staff members who are responsible for performing facility designs, permit construction management, and operate the dig safe program. This function is more analogous to the services provided by a CEU.

D. Transportation

1. Motor Pool: 102nd currently has a limited number of GSA vehicles and billets shown are used to fix a myriad of utility trucks, construction equipment, and cars. If Coast Guard managed facility, there would need to be consideration for the purchase and maintenance of additional vehicles.

E. Security

1. Security Agreement Contract: 102nd currently has a security contract that employees 17 people and is valued at $851K. They are on call 24 hours / day and provide security around the F15's and airfield. It is estimated that the CG would reduce scope of services if they managed the airfield.

F. Airfield Operations

1. Wild life abatement contractor keeps wild animals and birds off the airfield
2. The airfield manager and his staff ensure FOD is kept off the airfield, schedule flights, perform daily inspections on condition of runway and fencing, etc.
3. Air Traffic Controller: The contract for the air traffic controllers is part of a larger contract that covers 2 other bases.
4. Nav Aids: The 102nd facility engineer staff is responsible for the emergency generators and providing power to the airfield. The NAV AID contractor is responsible for the nav aid "box".

G. Support / Miscellaneous:

1. This includes such disciplines as accounting, management, procurement, civilian personnel, secretaries, OSHA safety, IT, COMMS, and environmental personnel

H. AFC43 Projects:

1. As noted on spreadsheet, 102nd will typically spend between $2M to $4M on non-recurring "AFC43-type" maintenance items.

Discussion of OTIS ANG Base
Base Operating Cost Summary
(i.e. Excel spreadsheet: BRAC.xls)

I. ACI projs:

1. 102nd indicates that they have the following MILCON projs are urgently pending: $1.3M approach lighting, $2.0M taxiway slab repairs, $7.0M control tower.

DEPARTMENT OF THE AIR FORCE
102D FIGHTER WING (ACC)
MASSACHUSETTS AIR NATIONAL GUARD
OTIS AIR NATIONAL GUARD BASE MASSACHUSETTS

26 July 2005

MEMORANDUM FOR DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

FROM: 102FW/CC

SUBJECT: Additional Information to be Included as Part of the Public Record

During a meeting on 22 July with the BRAC Analysts they requested additional data. The following information is being submitted to fulfill that request:

- Recruiting and Retention Data for 2003-2005
- Additional COBRA Runs Without Military Personnel Savings

I certify that the information provided is accurate and true. I respectfully request that this data be included as part of the public record.

PAUL G. WORCESTER, Colonel, MA ANG
Commander

OTIS COBRA RUNS

OVERVIEW –

3 COBRA Runs have been submitted to be included as part of the official record:

1. Original DoD COBRA Analysis
2. Additional 1 Time F-15 Conversion Costs and Recurring BOS Costs Incurred by Tenants
3. No Military Personnel Savings with Additional 1 Time and Recurring Costs

COBRA ASSUMPTIONS –

- Additional Costs Not Included in Original DoD COBRA Analysis
  - 1 Time Training Cost to Covert an F-16 Unit to F-15s – $78 Million
  - Recurring Leave Behind BOS Costs for Federal Tenants – $20 Million Annually

- Subtracted Military Personnel Savings Included in Original DoD COBRA Analysis
  - Title 32 Technicians – 87
    - Otis – 72
    - St. Louis – 15
  - Active Duty – 22
    - Otis – 13
    - St. Louis – 9
  - Drill Status Guardsmen – 433
    - Otis – 428
    - St. Louis – 5

CONCLUSION –

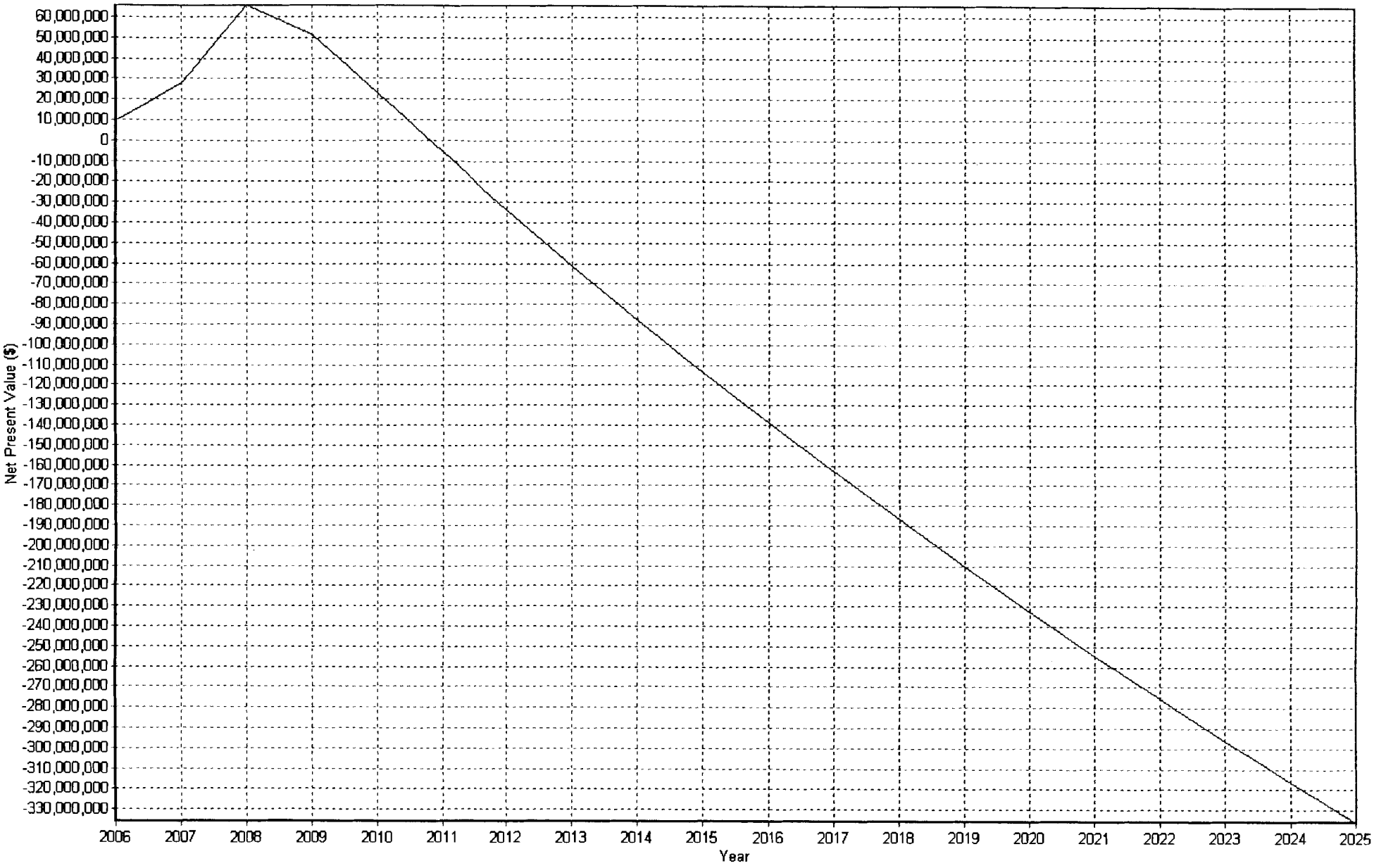
When the military personnel savings are subtracted and the $78 Million in one time training costs and the $20 Million in leave behind costs to other Federal Agencies are included, the Net Present value in 2025 changes from a savings of $336 Million to $163 Million cost.

COBRA NET PRESENT VALUES REPORT (COBRA v6.10)
Data As Of 4/27/2005 2:39:59 PM, Report Created 7/26/2005 1:11:22 PM

Department : Air Force
Scenario File : C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA USAF 0044V3 (142c3).CBR
Option Pkg Name: COBRA USAF 0044V3 (142c3) Otis ANGB, Falmouth, MA
Std Fctrs File : C:\Documents and Settings\sean.riley\My Documents\BRAC\COBRA\BRAC2005.SFF

Year	Cost($)	Adjusted Cost($)	NPV($)
2006	9,294,686	9,167,230	9,167,230
2007	19,381,763	18,595,317	27,762,548
2008	40,567,754	37,861,531	65,624,079
2009	-15,505,760	-14,077,228	51,546,851
2010	-32,423,133	-28,634,259	22,912,591
2011	-33,561,133	-28,831,981	-5,919,389
2012	-33,561,133	-28,046,674	-33,966,063
2013	-33,561,133	-27,282,757	-61,248,819
2014	-33,561,133	-26,539,646	-87,788,466
2015	-33,561,133	-25,816,777	-113,605,243
2016	-33,561,133	-25,113,596	-138,718,839
2017	-33,561,133	-24,429,568	-163,148,407
2018	-33,561,133	-23,764,171	-186,912,578
2019	-33,561,133	-23,116,898	-210,029,477
2020	-33,561,133	-22,487,255	-232,516,732
2021	-33,561,133	-21,874,762	-254,391,494
2022	-33,561,133	-21,278,951	-275,670,445
2023	-33,561,133	-20,699,369	-296,369,814
2024	-33,561,133	-20,135,573	-316,505,386
2025	-33,561,133	-19,587,133	-336,092,519

COBRA NET PRESENT [illegible]ES CHART (COBRA v6.10)
Data As Of 4/27/2005 2:39:59 PM, Chart Created 7/26/2005 1:11:22 PM



Department: Air Force
Scenario File: C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA USAF 0044V3 (142c3).CBR
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COBRA NET PRESENT VALUES REPORT (COBRA v6.10)
Data As Of 7/12/2005 7:35:31 AM, Report Created 7/26/2005 1:14:01 PM

Department : Air Force
Scenario File : C:\Documents and Settings\sean.riley\My Documents\BRAC\Otis\COBRA BOS Conv Costs.CBR
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Std Fctrs File : C:\Documents and Settings\sean.riley\My Documents\BRAC\COBRA\BRAC2005.SFF

Year	Cost($)	Adjusted Cost($)	NPV($)
2006	9,294,686	9,167,230	9,167,230
2007	19,381,763	18,595,317	27,762,548
2008	113,703,754	106,118,723	133,881,271
2009	4,494,240	4,080,190	137,961,461
2010	-12,423,133	-10,971,401	126,990,060
2011	-13,561,133	-11,650,212	115,339,847
2012	-13,561,133	-11,332,891	104,006,956
2013	-13,561,133	-11,024,213	92,982,743
2014	-13,561,133	-10,723,943	82,258,800
2015	-13,561,133	-10,431,851	71,826,949
2016	-13,561,133	-10,147,715	61,679,234
2017	-13,561,133	-9,871,318	51,807,916
2018	-13,561,133	-9,602,449	42,205,467
2019	-13,561,133	-9,340,904	32,864,563
2020	-13,561,133	-9,086,483	23,778,080
2021	-13,561,133	-8,838,991	14,939,089
2022	-13,561,133	-8,598,240	6,340,849
2023	-13,561,133	-8,364,047	-2,023,198
2024	-13,561,133	-8,136,232	-10,159,430
2025	-13,561,133	-7,914,623	-18,074,053

COBRA NET PRESENT [illegible]S CHART (COBRA v6.10)
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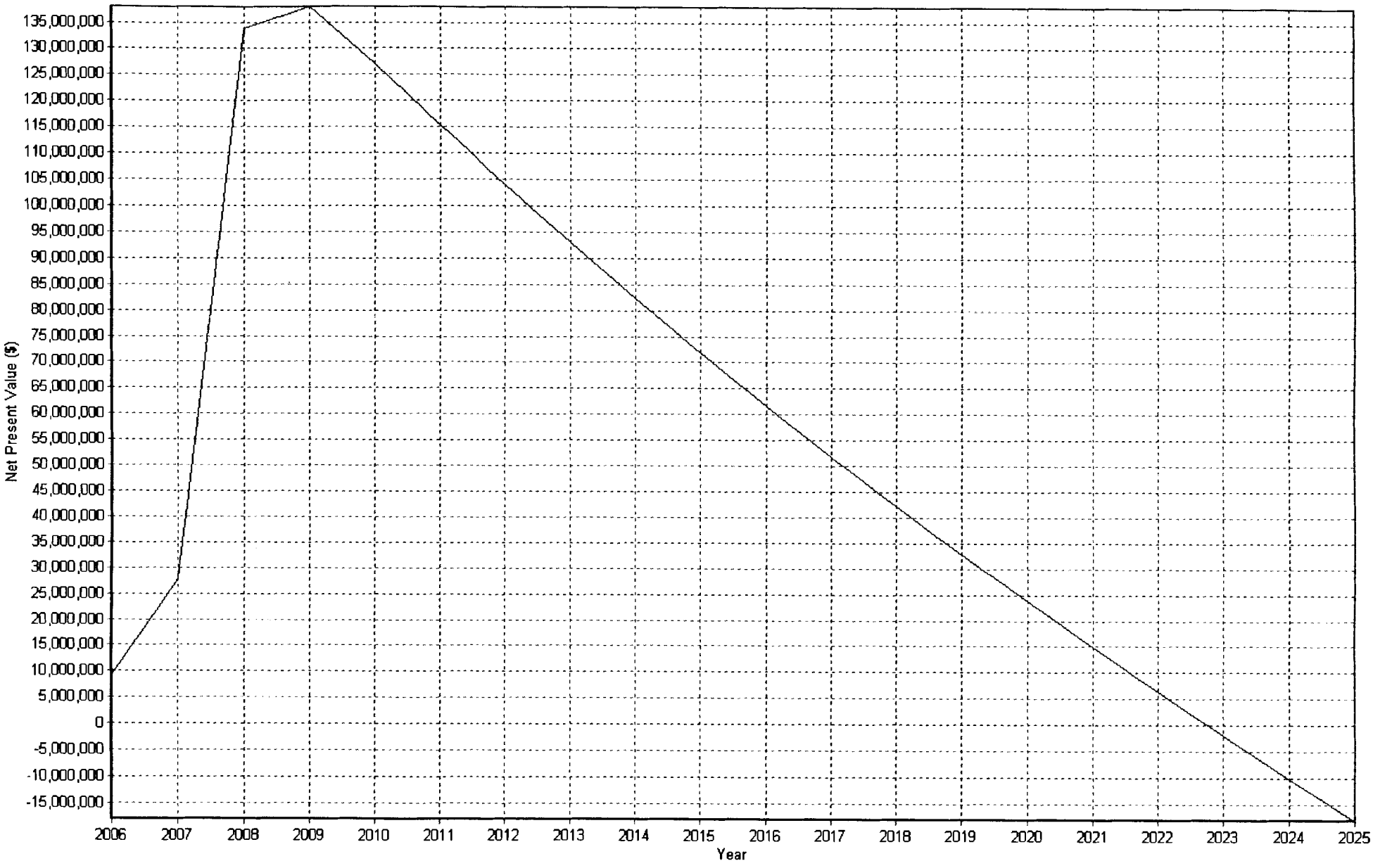

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Department : Air Force
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Std Fctrs File : C:\Documents and Settings\sean.riley\My Documents\BRAC\COBRA\BRAC2005.SFF

Year	Cost($)	Adjusted Cost($)	NPV($)
2006	9,127,843	9,002,675	9,002,675
2007	19,256,630	18,475,263	27,477,938
2008	120,748,074	112,693,126	140,171,064
2009	18,438,880	16,740,122	156,911,186
2010	1,582,118	1,397,236	158,308,423
2011	444,118	381,537	158,689,959
2012	444,118	371,145	159,061,104
2013	444,118	361,036	159,422,140
2014	444,118	351,202	159,773,342
2015	444,118	341,636	160,114,978
2016	444,118	332,331	160,447,309
2017	444,118	323,279	160,770,588
2018	444,118	314,474	161,085,062
2019	444,118	305,908	161,390,970
2020	444,118	297,576	161,688,546
2021	444,118	289,471	161,978,017
2022	444,118	281,587	162,259,604
2023	444,118	273,917	162,533,521
2024	444,118	266,456	162,799,977
2025	444,118	259,199	163,059,176

COBRA NET PRESENT [illegible]ES CHART (COBRA v6.10)
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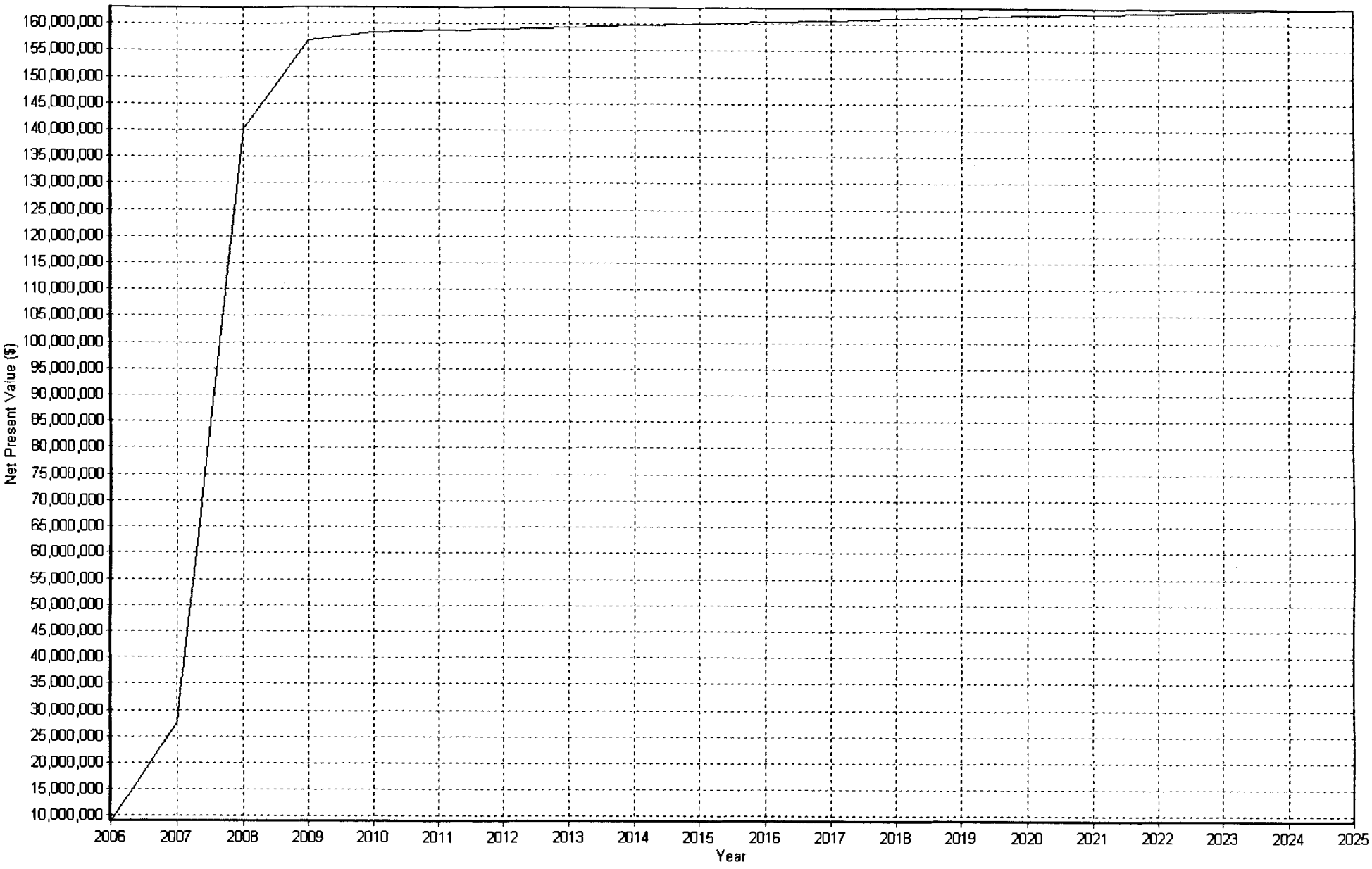

Department: Air Force
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POINT PAPER
ON
USE OF RECRUITING AND RETENTION (R&R) DATA FOR BRAC ANALYSIS

- R&R data, along with end strength, was cited by NGB as a reason for not considering the 102d FW for future growth during USAF's deliberations and subsequent DOD BRAC recommendations.

-- This is clearly an inappropriate way to make long-term determinations of a specific units long-term potential.

--- R&R data is not part of the criteria to be evaluated under the BRAC process. The AF made no meaningful attempt to analyze, trend or examine actual data across units or weapons systems.

--- PAS code data is not necessarily wing specific (i.e. Otis PAS code includes combat comm.) and can be misleading.

--- R&R is cyclical in nature and simply a snapshot in time.

--- DOD states units slated for growth will recruit from closed/realigned units. This same thought process should therefore apply should Otis PAA be increased

--- Otis ANGB is the ideal location to assign active duty personnel and integrate them into the 102d FW mission. This associate concept was briefed to the AF and ANG over 2 years ago.

-- Three year R&R data analysis of the 102d FW shows consistent upward improvement

--- 102d FW accessions rose by 27% from 2003 to 2004
--- 102d FW accessions in 2005 are on pace to exceed 2004 data
--- 102d FW accessions in 2005 exceeds all units in the Northeast recruiting region

-- Declining strength is a national issue, and not a 102d FW issue. States with similar R&R challenges were recommended for growth

--- 33 of 54 ANG states and territories showed declining strength from 2003 to 2004
---- The 102d FW strength increased during the same period

--- 26 of 54 ANG states and territories show declining strength since 2004
---- The 102d FW strength has increased during the same period

-- 102d FW strength has not impacted the unit's ability to accomplish any flying missions and/or support deployments due to lack of critical skills or inexperienced personnel.

--- 91% of 2005 accessions have gone into critical career fields
--- 80% of 2005 accessions are Prior Service Active Duty providing valuable experience
--- 29% of 2005 accessions came from the Air Force Shaping Program

- Recommend that R&R data not be used to evaluate a unit's potential for growth capability or as a decision maker for BRAC recommendations.

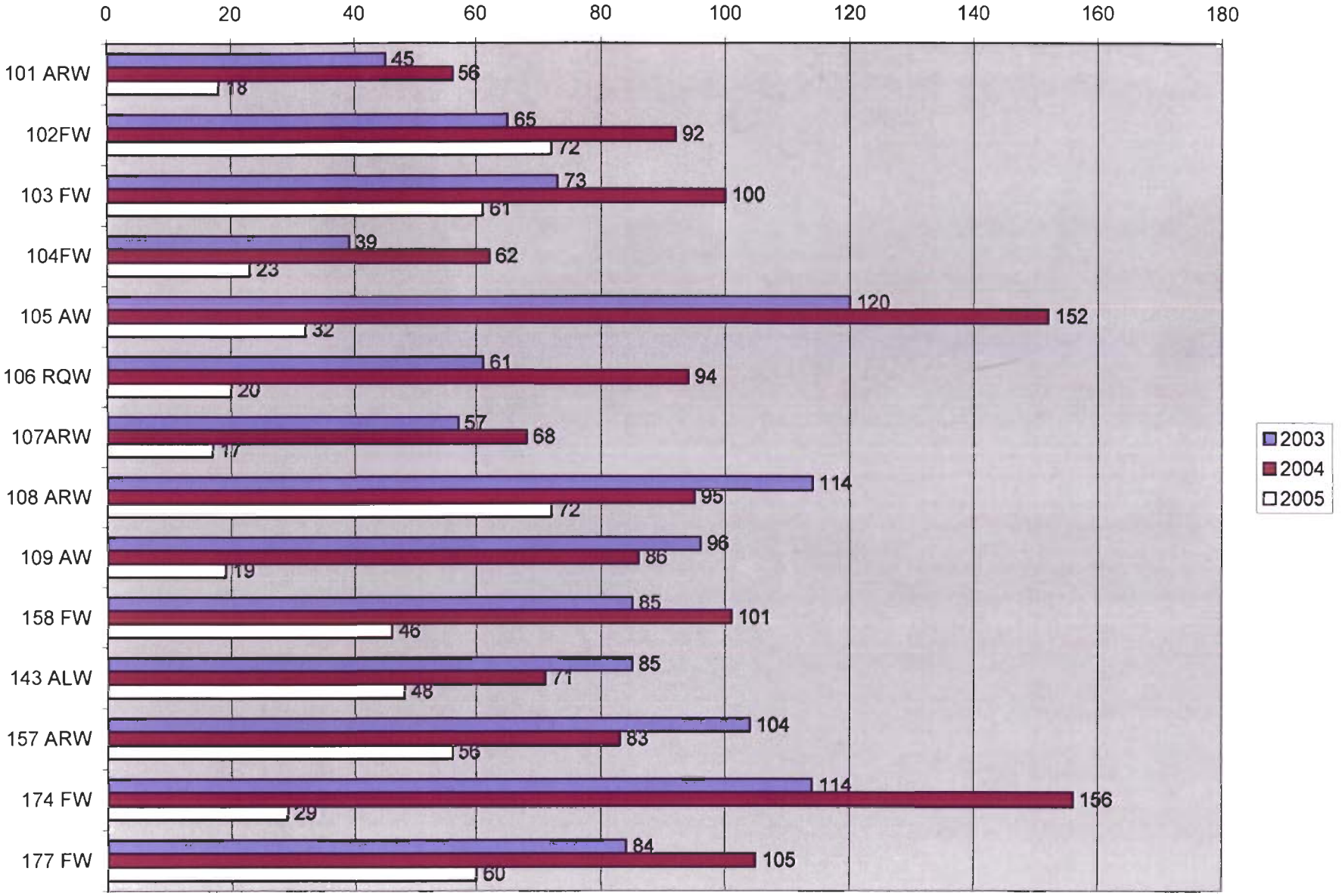
- POC for ANG Recruiting and Retention is Lt Col Barry Holder, DSN: 327-0794

William R. Dyer, Major/102 MSF/DP/DSN:557-4537/wrd/26 Jul 05

2000-2005 ANG Northeast Region Accession Statistics

State	2000	2001	2002	2003	2004	2005
Connecticut						
103 FW	106	102	107	73	100	61
103 ACS	35	31	30	30	25	5
TOTAL	141	133	137	103	125	66
Maine						
101 ARW	55	66	50	45	56	18
243 EIS / 265 CBCS	51	35	21	28	22	10
TOTAL	106	101	71	73	78	28
Massachusetts						
102 FW	84	109	93	65	92	72
212 EIS GSU	21	21	9	11	18	12
104 FW	73	54	74	39	62	23
TOTAL	178	184	176	115	172	107
New Hampshire						
157 ARW	0	90	50	104	83	56
TOTAL	0	90	50	104	83	56
New Jersey						
108 ARW	121	141	100	114	95	72
177 FW	125	129	110	84	105	60
TOTAL	246	270	210	198	200	132
New York						
105 AW	48	95	125	120	152	32
106 RQW	53	56	72	61	94	20
107ARW	78	60	57	57	68	17
109 AW	70	68	80	96	86	19
174 FW	81	125	116	114	156	29
TOTAL	330	404	450	448	556	117
Rhode Island						
143 ALW	82	89	68	85	71	48
282 CBCS	0	0	24	21	19	12
TOTAL	82	89	92	106	90	60
Vermont						
158 FW	82	129	84	85	101	46
Total	82	129	84	85	101	46
Region V Total	1165	1400	1270	1232	1405	612

2003-2005 ANG Northeast R[illegible]n Accession Statistics By Unit



2003-2005 ANG END STRENGTH BY STATE

State	2003 TOTAL (Dec)			Status	2004 TOTAL (Dec)			Status	Pct. Chng	2005 TOTAL (May 05)			Status	Pct. Chng
	Auth	Asgn	Pct		Auth	Asgn	Pct			Auth	Asgn	Pct		
AK	2168	1879	86.7%	Red	2256	1919	85.1%	Red	-1.6%	2253	1920	85.2%	Red	0.2%
AL	2482	2283	92.0%	Yellow	2459	2208	89.8%	Red	-2.2%	2459	2200	89.5%	Red	-0.3%
AR	2135	2040	95.6%	Yellow	2127	2050	96.4%	Green	0.8%	2122	2020	95.2%	Yellow	-1.2%
AZ	2639	2630	99.7%	Green	2632	2579	98.0%	Green	-1.7%	2627	2573	97.9%	Green	0.0%
CA	4910	4661	94.9%	Yellow	4886	4551	93.1%	Yellow	-1.8%	4865	4529	93.1%	Red	-0.1%
CO	1432	1408	98.3%	Green	1407	1386	98.5%	Green	0.2%	1409	1378	97.8%	Green	-0.7%
CT	1213	1116	92.0%	Yellow	1212	1068	88.1%	Red	-3.9%	1211	1049	86.6%	Red	-1.5%
DC	1330	1256	94.4%	Yellow	1318	1194	90.6%	Yellow	-3.8%	1321	1169	88.5%	Red	-2.1%
DE	1093	945	86.5%	Red	1115	943	84.6%	Red	-1.9%	1089	941	86.4%	Red	1.8%
FL	1968	2004	101.8%	Green	1965	1975	100.5%	Green	-1.3%	1966	1980	100.7%	Green	0.2%
GA	3234	2967	91.7%	Yellow	3215	2897	90.1%	Yellow	-1.6%	3212	2840	88.4%	Red	-1.7%
GU	277	280	101.1%	Green	277	322	116.2%	Green	15.2%	274	329	120.1%	Green	3.8%
HI	2471	2340	94.7%	Yellow	2464	2329	94.5%	Yellow	-0.2%	2470	2313	93.6%	Red	-0.9%
IA	2062	1992	96.6%	Green	1975	1976	100.1%	Green	3.4%	1974	2007	101.7%	Green	1.6%
ID	1446	1336	92.4%	Yellow	1442	1337	92.7%	Yellow	0.3%	1442	1349	93.6%	Red	0.8%
IL	3279	3258	99.4%	Green	3248	3175	97.8%	Green	-1.6%	3245	3149	97.0%	Green	-0.7%
IN	2037	2069	101.6%	Green	2016	2057	102.0%	Green	0.5%	2013	2035	101.1%	Green	-0.9%
KS	2286	2170	94.9%	Yellow	2276	2192	96.3%	Green	1.4%	2271	2206	97.1%	Green	0.8%
KY	1225	1153	94.1%	Yellow	1212	1172	96.7%	Green	2.6%	1203	1176	97.8%	Green	1.1%
LA	1446	1499	103.7%	Green	1426	1500	105.2%	Green	1.5%	1425	1506	105.7%	Green	0.5%
MA	2341	1942	83.0%	Red	2313	1919	83.0%	Red	0.0%	2316	1908	82.4%	Red	-0.6%
MD	1701	1654	97.2%	Green	1693	1625	96.0%	Yellow	-1.3%	1698	1626	95.8%	Yellow	-0.2%
ME	1221	1118	91.6%	Yellow	1210	1088	89.9%	Red	-1.6%	1209	1103	91.2%	Red	1.3%
MI	2781	2799	100.6%	Green	2761	2794	101.2%	Green	0.5%	2766	2806	101.4%	Green	0.3%
MN	2305	2395	103.9%	Green	2265	2349	103.7%	Green	-0.2%	2234	2318	103.8%	Green	0.1%
MO	2688	2536	94.3%	Yellow	2656	2519	94.8%	Yellow	0.5%	2651	2513	94.8%	Yellow	0.0%
MS	2669	2591	97.1%	Green	2662	2537	95.3%	Yellow	-1.8%	2674	2518	94.2%	Red	-1.1%
MT	1083	1015	93.7%	Yellow	1099	1022	93.0%	Yellow	-0.7%	1101	1013	92.0%	Red	-1.0%
NC	1598	1546	96.7%	Green	1589	1528	96.2%	Green	-0.6%	1583	1513	95.6%	Yellow	-0.6%
ND	1067	1015	95.1%	Yellow	1064	996	93.6%	Yellow	-1.5%	1038	1000	96.3%	Yellow	2.7%
NE	932	938	100.6%	Green	953	947	99.4%	Green	-1.3%	944	942	99.8%	Green	0.4%
NH	1005	926	92.1%	Yellow	996	929	93.3%	Yellow	1.1%	994	924	93.0%	Red	-0.3%
NJ	2412	2339	97.0%	Green	2386	2291	96.0%	Green	-1.0%	2384	2271	95.3%	Yellow	-0.8%
NM	1005	1005	100.0%	Green	983	971	98.8%	Green	-1.2%	989	966	97.7%	Green	-1.1%
NV	1058	1020	96.4%	Green	1081	1043	96.5%	Green	0.1%	1068	1040	97.4%	Green	0.9%
NY	6185	5798	93.7%	Yellow	6162	5812	94.3%	Yellow	0.6%	6132	5808	94.7%	Yellow	0.4%
OH	4893	5151	105.3%	Green	4872	5036	103.4%	Green	-1.9%	4865	5001	102.8%	Green	-0.6%
OK	2456	2426	98.8%	Green	2443	2378	97.3%	Green	-1.4%	2414	2385	98.8%	Green	1.5%
OR	2196	2134	97.2%	Green	2177	2116	97.2%	Green	0.0%	2185	2114	96.8%	Green	-0.4%
PA	4347	4182	96.2%	Green	4316	4086	94.7%	Yellow	-1.5%	4311	4093	94.9%	Yellow	0.3%
PR	1313	1311	99.8%	Green	1301	1277	98.2%	Green	-1.7%	1301	1261	96.9%	Green	-1.2%
RI	1288	1172	91.0%	Yellow	1287	1137	88.3%	Red	-2.6%	1283	1124	87.6%	Red	-0.7%
SC	1254	1202	95.9%	Yellow	1245	1161	93.3%	Yellow	-2.6%	1244	1164	93.6%	Red	0.3%
SD	1004	1021	101.7%	Green	998	1001	100.3%	Green	-1.4%	997	1018	102.1%	Green	1.8%
TN	3702	3513	94.9%	Yellow	3753	3441	91.7%	Yellow	-3.2%	3745	3409	91.0%	Red	-0.7%
TX	3379	3167	93.7%	Yellow	3353	3149	93.9%	Yellow	0.2%	3355	3131	93.3%	Red	-0.6%

Purple Indicates States with F-15 Aircraft

SHIPPING CONTAINER TALLY → 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

REQUISITION AND INVOICE/SHIPPING DOCUMENT

Form Approved
OMB No. 0704-0246
Expires Jan 31, 2003

1. FROM *(Include ZIP Code)* 102LRS/LGRD 158 Rielly ST. Box 20 Otis ANG Base, MA 02542-1330	SHEET NO 1	NO. OF SHEETS 1	5. REQUISITION DATE	6. REQUISITION NUMBER FB62025210X548XXX
	7. DATE MATERIAL REQUIRED *(YYYYMMDD)* 20050801			8. PRIORITY
2. TO *(Include ZIP Code)* SHIP TO: BRAC Commission Analysts 2521 South Clark Street Arlington, VA 22202	9. AUTHORITY OR PURPOSE BRAC MATERAL			
	10. SIGNATURE			11a. VOUCHER NUMBER & DATE *(YYYYMMDD)* PACKER DOUGLAS THOMAS 20050729
3. SHIP TO - MARK FOR ATTN MR CRAIG HALL 508 968-4522	12. DATE SHIPPED *(YYYYMMDD)*			b. 102LRS/LGRD 557-4522
	13. MODE OF SHIPMENT			14. BILL OF LADING NUMBER
	15. AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO.			

4. APPROPRIATIONS DATA

TO FUNDED

AMOUNT

ITEM NO. (a)	FEDERAL STOCK NUMBER, DESCRIPTION AND CODING OF MATERIAL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CONTAINER (f)	CONTAINER NOS. (g)	UNIT PRICE (h)	TOTAL COST (i)
1.	BRAC MATERAL NNSN	EA	1		BX		N/A	N/A
	This shipment does not contain any classified, sensitive, protective or hazardous materiel.							

18. RECAPITULATION OF SHIPMENT	ISSUED BY	TOTAL CONTAINERS	TYPE CONTAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE
	CHECKED BY					

Otis BRAC Data

- 6 Jul Briefings
  - FINAL MA PRESENTATION (Powerpoint)
  - NE Reg Hearing Otis with notes (Powerpoint)
- BOS Costs
  - Otis BOS (Excel)
  - Otis BOS Discussion (Word)
  - USCG Brac Discussion (Word)
  - USCG Brac Impact (Excel)
- COBRA
  - COBRA BOS Conv Costs
  - COBRA BOS Conv No MIL Pers
  - COBRA USAF 0044V3 (142c3)
  - OTIS COBRA RUNS (Word)
- Conversion Costs
  - F-15 ACY Conversion Costs (Word)
- Flawed Methodology
  - 366Final04 (PDF)
  - Flawed Methodology Analysis (Word)
  - GAO TRAINING RANGES (PDF)
- Homeland Defense Analysis
  - 10 minute response (Powerpoint)
  - 011025eberhart (PDF)
  - SUMMARY OF AFIT PAPER (Powerpoint)
  - Viper INTX to ALLEX (Powerpoint)
- Otis MCI Recalculations
  - F15 AND C-17 AIRCRAFT PARKING-11X17 700 SCALE (PDF)
  - Munitions Storage Area (PDF)
  - OTIS FAA Airspace MOA (PDF)
  - OTIS MCI Final Analysis (Word)
  - MCI DATA
    - ATCAA INFO (database files)
    - Formula 1245 (database files)
    - Formula 1266 (database files)
    - MCI Score (Excel)
  - Real Property Records
    - CC113321 – BRAC-LG (PDF)
    - CC116665 – BRAC-LG (PDF)
    - CC141181 – BRAC-LG (PDF)
    - CC141183 – BRAC-LG (PDF)
    - CC141459 – BRAC-LG (PDF)
    - CC211111 – BRAC-LG (PDF)
    - CC211153 – BRAC-LG (PDF)
    - CC211154 – BRAC-LG (PDF)
    - CC211159 – BRAC-LG (PDF)
    - CC211179 – BRAC-LG (PDF)
    - CC215552 – BRAC-LG (PDF)
    - CC217713 – BRAC-LG (PDF)
    - CC218712 – BRAC-LG (PDF)
    - CC218852 – BRAC-LG (PDF)
    - CC219943 – BRAC-LG (PDF)
    - CC610129 – BRAC-LG (PDF)
    - CC610811 – BRAC-LG (PDF)
    - Real Property Code Breakout For BRAC Meetings (Word)

Community Support

Resolution in Support of the Otis Air National Guard Base
Massachusetts Military Reservation, Cape Cod, Massachusetts

Whereas: The Otis Air National Guard Base performs a critical military mission in America's homeland defense by protecting the Northeastern United States from attacks and defends our borders against illegal entry. The 102nd ANG F-15 fighters were the first military aircraft responding to the September 11, 2001 attacks on the World Trade Center;

Whereas: The 102nd Fighter Wing traces its history in Eastern Massachusetts from 1921, serving as the keystone of military operations in support of the many critical missions carried out at the Massachusetts Military Reservation, including hosting the Coast Guard Air Wing that provides vital and irreplaceable protection of our coastal waters from New Jersey to Canada and serving as an emergency landing location for aborted Space Shuttle launches;

Whereas: The Base Realignment and Closure Commission is in the evaluation and decision phase of the 2005 round of the Department of Defense's proposed military base closures and realignments and will be making its recommendations to Congress and the President in September of 2005, and since the Department of Defense has included Otis Air National Guard Base on its proposed closure list to be considered by the Base Realignment and Closure Commission; and

Whereas: The loss of the Otis Air National Guard from the Massachusetts Military Reservation, given its role as host installation, jeopardizes numerous other military and homeland security organizations at the Massachusetts Military Reservation such as the Army Guard training at Camp Edwards and numerous United States Coast Guard operations, including Air Station Cape Cod. Since this would severely damage the mission of the Base, diminishing homeland security and coastal safety of the Northeast region of the United States, and would substantially and fundamentally impact the economy of the Cape Cod region;

Now, Therefore, Be It Resolved: That the following municipalities and organizations state their overwhelming support for the military mission of the Otis Air National Guard Base, and respectfully and strongly recommend that the Otis Air National Guard Base be removed from consideration for closure by the Base Realignment and Closure Commission, and that this important national resource continues to fulfill its vital role in the protection of our nation.

<u>Cape Cod & Islands Municipalities</u>
Town of Aquinnah
Town of Barnstable
Town of Bourne
Town of Brewster
Town of Chatham
Town of Dennis
Town of Eastham
Town of Edgartown
Town of Falmouth
Town of Harwich

Town of Mashpee
Town of Nantucket
Town of Orleans
Town of Provincetown
Town of Sandwich
Town of Truro
Town of Yarmouth
Town of Wellfleet
Town of Yarmouth

Cape Cod & Islands Counties
Barnstable County
Cape Cod Commission
Dukes County
Nantucket County

Other Municipalities
Town of Boxborough
Town of Canton
Town of Carver
Town of Easthampton
Town of Foxborough
Town of Merrimac
Town of Northborough
Town of Plymouth
Town of Quincy
Town of Reading
City of Revere
City of Taunton
Town of Wayland
Town of West Bridgewater
Town of Wilmington

Commonwealth of Massachusetts Legislature
Massachusetts House of Representatives
Massachusetts Senate

Cape Cod & Other Civic Organizations
Bourne Financial Development Corporation
Cape Cod Canal Region Chamber of Commerce
Cape Cod Chamber of Commerce
Falmouth Chamber of Commerce
Mashpee Chamber of Commerce
Plymouth Area Chamber of Commerce

TOWN OF WAYLAND

41 COCHITUATE ROAD
WAYLAND, MASSACHUSETTS 01778

JOHN SENCHYSHYN
ACTING EXECUTIVE SECRETARY
TEL. (508) 358-7755
www.wayland.ma.us

BOARD OF SELECTMEN
DOUGLAS J. LEARD
JOSEPH F. NOLAN
ALAN J. REISS
MICHAEL L. TICHNOR
WILLIAM D. WHITNEY

July 12, 2005

BRAC Commission
2521 South Clark Street
Suite 600
Arlington VA 22202

RE: Resolution in Support of Otis Air National Guard Base

Dear BRAC Commission:

Enclosed is a resolution from the Board of Selectmen of the Town of Wayland, Massachusetts, supporting the retention of the Otis Air National Guard (Otis ANG) Base operations at the Massachusetts Military Reservation (MMR). As explained in the resolution, Otis ANG Base is an integral and valued part of the Sandwich community and the entire Cape Cod region. Most importantly, the military missions it fulfills are of utmost importance to the safety and protection of the United States, in general, and the Northeast, in particular.

Otis ANG Base and F-15s from the 102nd Fighter Wing were the first military aircraft to reach the World Trade Center during the September 11, 2001 attacks. They regularly provide a myriad of military and homeland security functions, as well as vital support to the U.S. Coast Guard at Air Station Cape Cod, one of the busiest installations in the country. Otis ANG Base is the host installation for all of the military and homeland security operations at the MMR, including U.S. Army Guard training at Camp Edwards and numerous Coast Guard operations. It is clear the loss of Otis would severely damage the shared infrastructure and resources currently found on the MMR.

The Wayland Selectmen urge the Base Realignment and Closure Commission to remove Otis ANG Base from the list of military installations being considered for closure and/or realignment. Simply put, Otis ANG Base is too important for our nation's security and homeland defense to be relocated.

Thank you for your consideration of this input. If you have any questions about the Town of Wayland's support for retaining the Otis ANG at the MMR, please do not hesitate to contact me at (508) 358-3623.

Sincerely,

John Senchyshyn
Acting Executive Secretary

/md
cc: Board of Selectmen
Save Otis Coalition
Federal and State Legislative Delegation

TOWN OF WAYLAND

41 COCHITUATE ROAD
WAYLAND, MASSACHUSETTS 01778

TEL. (508) 358-7755
www.wayland.ma.us

Resolution in Support of the
Otis Air National Guard Base
Massachusetts Military Reservation,
Cape Cod, Massachusetts

Whereas: The Otis Air National Guard Base performs a critical military mission in America's homeland defense by protecting the Northeastern United States from attacks and defends our borders against illegal entry. The 102nd ANG F-15 fighters were the first military aircraft responding to the September 11, 2001 attacks on the World Trade Center;

Whereas: The 102nd Fighter Wing traces its history in Eastern Massachusetts from 1921, serving as the keystone of military operations in support of the many critical missions carried out at the Massachusetts Military Reservation, including hosting the Coast Guard Air Wing that provides vital and irreplaceable protection of our coastal waters from New Jersey to Canada;

Whereas: The Base Realignment and Closure Commission is in the evaluation and decision phase of the 2005 round of the Department of Defense's proposed military base closures and realignment, and will be making its recommendations to Congress and the President in September of 2005, and since the Department of Defense has included Otis Air National Guard Base on its proposed closure list to be considered by the Base Realignment and Closure Commission; and

Whereas: The loss of the Otis Air National Guard from the Massachusetts Military Reservation, given its critical role as host installation, jeopardizes other military and homeland security organizations at the Massachusetts Military Reservation such as the Army Guard training at Camp Edwards and numerous United States Coast Guard operations, including Air Station Cape Cod. Since this would severely damage the mission of the Base, diminishing homeland security and coastal safety of the Northeast region of the United States, and would substantially and fundamentally impact the economy of the Cape Cod region;

Now, Therefore, Be it Resolved: That the following Towns jointly state their overwhelming support for the military mission of the Otis Air National Guard Base, and respectfully and strongly recommend that the Otis Air National Guard Base be removed from consideration for closure by the Base Realignment and Closure Commission, and that this important national resource continue to fulfill its vital role in the protection of our nation.

In Witness Thereof, we have this date, July 11, 2005, hereunto set our hand and caused the great Seal of the Town of Wayland to be affixed.

BOARD OF SELECTMEN
Town of Wayland

CAPE COD ECONOMIC DEVELOPMENT COUNCIL

3225 MAIN STREET
P.O. BOX 226
BARNSTABLE, MA 02630
(508) 362-8051
(508) 362-3136
E-mail: ddray@cape.com

August 2, 2005

Base Realignment and Closure (BRAC) Commission
2521 South Clark Street
Suite 600
Arlington, VA 22202

Dear Commissioners:

The Cape Cod Economic Development Council opposes the proposed closure of Otis Air National Guard Base. Otis ANG is a critical element of homeland defense throughout New England and an important contributor to the regional economy.

The base's strategic location on the edge of Nantucket Sound and the Atlantic Ocean make it ideal for patrolling and defending the eastern seaboard and for engaging in required air defense exercises to maintain military readiness. Otis is also an important contributor to the economy of Cape Cod through both direct civilian employment and indirect effects on secondary businesses. If Otis ANG were to leave, hundreds of civilians would lose their jobs, thereby threatening the economic stability of the entire Upper Cape region.

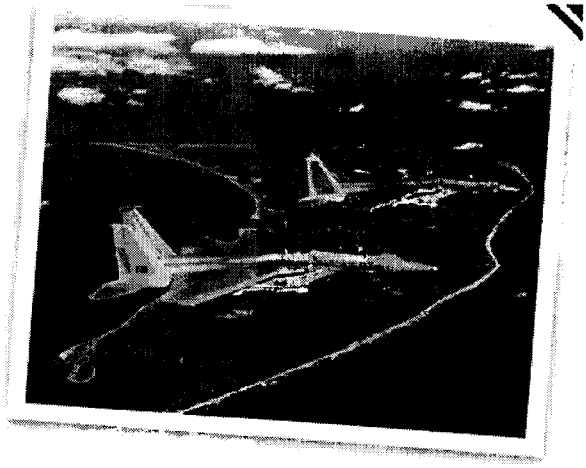
Otis ANG's role in funding the cost of shared infrastructure is vital to the continuing operations of the Coast Guard and the Army National Guard. In the event that Otis ANG is closed, it is unlikely that the Coast Guard and the Army National Guard would be able to absorb the cost of the infrastructure needed to continue their operations. The attendant loss of Coast Guard operations and its air/sea rescue capability would have severe consequences for the safety of the region's fishing fleet and recreational boaters, as well as individuals on Cape Cod, Nantucket and Martha's Vineyard who require medical transport to Boston during inclement weather.

Historically, there has been a very close relationship between Otis ANG and the Upper Cape community that surrounds it. That positive relationship has led to a broad coalition of citizens joining with federal, state, county and town officials to oppose the recommendation to close the base. The Cape Cod Economic Development Council—a fourteen-member advisory council that reports to the three commissioners of Barnstable County—has been a part of that effort.

OTIS COALITION E-NEWSLETTER

A Message on the Grassroots Movement to Save Otis Air National Guard Base June 17, 2005

Thank you for signing up for the Otis Coalition Newsletter. We hope that this weekly communication will help keep you abreast of the activities relating to the BRAC process. Feel free to pass this along to friends who might feel compelled to aid us in this quest to keep the base open. We appreciate your interest!



Moving forward there are:

FIVE WAYS TO MAKE A DIFFERENCE

1. SEND A DONATION

OCAC has started this fund with a $1,000 contribution. All monies received will go directly to this effort for buses on July 6th, flyers, signs, tee shirts and bumper stickers. People wishing to financially support this grass roots campaign can send donations two ways: Through the U.S. mail. Mailing Address: **OCAC, PO Box 651, Falmouth, MA 02541.** Make checks payable to **The Otis Civilian Advisory Council.**

Or you may also donate online through ***PayPal*** by clicking the button below:

Make a Donation

OCAC is a civic organization and therefore contributions are non-tax deductible.

2. WRITE TO THE BRAC COMMISSION

Tell them how much the base means to the safety of Cape Cod and the country.
Mailing Address:
BRAC Commission, 2521 South Clark Street, Suite 600, Arlington, Va. 22202

The BRAC Commission web site is www.brac.gov. The BRAC Commission is appointed by the President and Congress to provide an independent review and analysis of the recommendations made by the Defense Department.

3. SIGN UP TO ATTEND THE JULY 6TH HEARING ON BEACON HILL

We want to invite you to the New England Regional BRAC Commission Hearings on July 6th. A Coalition of supporters will be traveling from Cape Cod to advocate to save Otis. We need you to attend and bring a friend to the rally to show the BRAC Commissioners our support. The event will be held at the Boston Convention and Exhibition Center, 415 Summer Street, Boston, MA. Bus rides to Boston will be available with various pick up points along Routes 6 and Routes 3, and also from 495 and 24. Sponsors are needed to pay for buses and refreshments that day. A complete schedule for the day with details will be forthcoming.

For Bus Reservations Call (774) 810-6101 or (774) 810-6102.
To Sponsor a Bus Call (774) 810-6102. Please stand by for additional details.

4. ENCOURAGE YOUR FRIENDS TO SUPPORT THE COALITION'S efforts to Save the Otis Air National Guard Base, and stay up to date with the coalition by registering for our newsletter.

Your Name:
Your Email:
(unsubscribe) Join Now!

5. WWW.SAVEOTIS.COM
Remember to check in regularly for the latest news on the website generously donated by Falmouth based Web Development Company, Genevate.com.

We look forward to sending you the next update on June 23, 2005. SAVE OTIS!

OTIS COALITION E-NEWSLETTER

A Message from the Grassroots Movement to Save Otis Air National Guard Base June 24, 2005

Thank you for signing up for the Otis Coalition Newsletter. We hope that this weekly communication will help keep you abreast of the activities relating to the BRAC process. Feel free to pass this along to friends who might feel compelled to aid us in this quest to keep the base open. We appreciate your interest!

Get on the Bus!

We want to invite you to the New England Regional BRAC Commission Hearings on July 6th at the Boston Convention and Exhibition Center. The icon below has been added to multiple pages on the website to facilitate reservations.

BRAC Commission Hearings in Boston
Click here for details

Trip Itinerary: Departing at 7:30AM - Buses will depart from the following locations: (Estimated return time is 5PM)

1. **Upper Cape Cod Regional Tech High School**, 220 Sandwich Road, Bourne
2. **Henry T. Wing School**, 33 Water St., Sandwich
3. **Bourne Stone School** on the Mass Military Reservation, 5400 Lindberg Ave Buzzards Bay
4. **Eagles Nest**, 102nd Fighter Wing, Mass Military Reservation

Call for bus reservations (774) 810-6101 or (774) 810-6102
To sponsor a bus call (774) 810-6102

There will be four commissioners present. The schedule for the day is shaping up this way: Beginning at 8:30AM they will hear from:

Rhode Island from 8:30AM-9:00AM

Connecticut from	9:00AM-11:00AM
Massachusetts from	11:00AM-12:00PM
New Hampshire from	1:00PM-3:00PM
Maine from	3:00PM-5:00PM

SEND A DONATION

Otis Civilian Advisory Council (OCAC) has started this fund with a $1,000 contribution. All monies received will go directly to this effort for buses on July 6th, flyers, signs, tee shirts and bumper stickers. People wishing to financially support this grass roots campaign can send donations two ways: Through the U.S. mail. Mailing Address:
OCAC, PO Box 651, Falmouth, MA 02541. Make checks payable to **The Otis Civilian Advisory Council.**

Or you may also donate online through ***PayPal*** by clicking the button below:

Make a Donation

Latest Action Item – Please participate:

NATIONAL GUARD ASSOCIATION OF THE UNITED STATES
LEGISLATIVE ALERT 20 June 2005
Subject: BRAC Hearing Request

Rep. Mike Castle, R-Del., is sponsoring a letter requesting BRAC Commission Chairman Anthony Prinicipi hold a hearing regarding the Air Force's efforts to enclave Air National Guard aircraft as part of the BRAC proposal. The Senate sent a similar letter with 23 members having signed on.

Listed below are the House members with enclaved ANG units in their districts. Please get the word out! Contact these members and their staff requesting that they sign onto Congressman Castle's letter.

Proposed Enclaves

BASE / MEMBER / MILITARY LA

117 ARW - Birmingham, AL Davis (D-7) Allan Freyer
188 FW - Ft Smith, AR Boozman (R-3) Vivian Moeglein

163 ARW - March ARB, CA Calvert (R-44) Maria Bowie
103 FW - Bradley, CT Larson (D-1) Neil McKiernan
166 AW - New Castle, DE Castle
183 FW - Springfield, IL LaHood (R-18) Erin Reif
181 FW - Terre Haute, IN Hostettler (R-8) Jim Bolbow
184 ARW - McConnell AFB, KS Tiahrt (R-4) Jim Richardson
102 FW - Falmouth, MA Delahunt (D-19) Chris Stammerman
148 FW - Duluth, MN Oberstar (D-8) Marianne Buckley
131 FW - St. Louis Clay (D-1) Michelle Bogdonavich
186 ARW - Meridian, MS Pickering (R-3) Mike Lipski
120 FW - Great Falls, MT Rehberg (R-At Large) Amy Astin
119 FW - Fargo, ND Pomeroy (D-At Large) Aleta Botts
108 ARW - McGuire AFB, NJ Saxton (R-3) Michael Sildestro
174 FW - Syracuse, NY Walsh (R-25) Matt Sparkes
178 FW - Springfield, OH Hobson (R-7) Kenny Kraft
142 FW - Portland, OR Blumenauer (D-3) Judah Ariel
111 FW - Willow Grove, PA Schwartz (D-13) Kirk Freeman
156 AW - San Juan, PR Fortuno (R-At Large) Javier De La Luz
118 AW - Nashville, TN Cooper (D-5) Richard Tracy
147 FW - Houston, TX DeLay (R-22) Ryan Flood
130 AW - Charleston, WV Capito (R-2) Adam Tomlinson

ENCOURAGE YOUR FRIENDS TO SUPPORT THE COALITION'S efforts to Save the Otis Air National Guard Base, and stay up to date with the coalition by registering for our newsletter.

Your Name:
Your Email:
(unsubscribe) Join Now!

On behalf of the committee I want to thank you for participating in this important community effort.

Regards,
Christine Ross
Executive Director Falmouth Chamber of Commerce
Chair Communications Sub-committee, Save Otis Coalition

OTIS COALITION E-NEWSLETTER

www.saveotis.com

A Message from the Grassroots Movement to Save Otis Air National Guard Base

July 1, 2005

Happy Fourth of July Weekend! Thank you for signing up for the Otis Coalition Newsletter. We hope that this weekly communication will help keep you abreast of the activities relating to the BRAC process. Feel free to pass this along to friends who might feel compelled to aid us in this quest to keep the base open. We appreciate your interest!

Extra Extra...

CONGRESSMAN BILL DELAHUNT

For Immediate Release:
June 30, 2005

NOW CONFIRMED: CLOSING OTIS COSTS CGUARD $170 MILLION OVER 10 YEARS "Savings" Really Just Shift Burden from Air Force to Coast Guard Congressional Delegation Now Exploring Financial Impact on Other MMR Tenants

WASHINGTON, DC -- The Coast Guard today confirmed concerns articulated recently by Senators Edward M. Kennedy and John Kerry and Congressman Bill Delahunt that most of the projected $300 million in savings associated with the proposed closing of Otis ANG Base comes from shifting costs to the US Coast Guard.

Both in a written response to the congressional delegation and in public testimony today, key officials outlined - for the first time -- the magnitude of the impact of an Otis closure on Coast Guard capabilities. In testimony before the Base Realignment and Closure Commission (BRAC) today in Atlanta, the senior military advisor to the Secretary of Homeland Security testified that the proposed closure "places a significant direct cost impact on Coast Guard mission performance."

In preparation of the upcoming BRAC hearing on July 6, the Cape's congressional delegation last week asked the Air Force to explain how the Pentagon calculated the $300 million in savings over the next decade without considering disruptions in operations of the Coast Guard and other military services at the Massachusetts Military Reservation (MMR). When the Air Force was unable to provide answers, the delegation pressed the Coast Guard for answers.

Today, the Coast Guard responded by stating that the proposed closure of Otis would mean its share of operations costs at MMR would "increase by an estimated $17 million annually, with a need for at least 100 additional personnel" - and that "there is no funding within the Coast Guard's existing budget to support this effort". The Coast Guard's current operating budget for Air Station Cape Cod is only $5 million.

Testimony at Atlanta BRAC Hearing

The themes of the delegation letter were echoed at today's BRAC hearing in Atlanta, a precursor of its Boston hearing next Wednesday. At today's hearing, Admiral Sullivan of the Homeland Security Department confirmed that withdrawal of the 102nd Air National Guard Wing from the base would leave the Coast Guard with sole responsibility for the $17 million cost of maintaining base airfields. Admiral Sullivan testified further that this

"comparatively large" financial burden would reflect a very significant portion of the [Coast Guard's] discretionary spending."

Admiral Sullivan also stated that the closure of Otis would also deprive the Coast Guard of access to Defense Department housing, medical treatment and supply sources. He testified that these new responsibilities would cost the Coast Guard an additional $8-10 million annually.

In its letter to the congressional delegation, the Coast Guard stated that MMR is an optimum location for performing all its missions in the Northeast in a cost-effective manner. The Coast Guard reported that, over the past year, it conducted 283 search-and-rescue missions, including 53 emergency medical evacuations from Martha's Vineyard, Nantucket and Block Island. At MMR, the Coast Guard also operates all military housing at the base, a marine safety office, fisheries training center and full scale health clinic used by other military services and local retirees for affordable health care.

In the context of his testimony today in Atlanta on the potential financial pressures resulting from closing Otis, Admiral Sullivan also addressed the prospect of relocating Air Station Cape Cod - an option which he said also would involve significant one-time and recurring costs. "The preferred Coast Guard option," he testified, "is to remain at the [Otis] site."

In the wake of these developments, the congressional delegation is requesting corresponding financial impact data from the FAA and other federal agencies at the MMR.

Show your support...

Join us for the Rally!

We want to invite you to the New England Regional BRAC Commission Hearings on July 6th at the Boston Convention and Exhibition Center.

BRAC Commission Hearings in Boston
Click here for details

Trip Itinerary:
Departing at 7:30AM - Buses will depart from the following locations: (Estimated return time is 4PM)

1. **Upper Cape Cod Regional Tech High School**, 220 Sandwich Road, Bourne
2. **Henry T. Wing School**, 33 Water St., Sandwich
3. **Bourne Stone School** on the Mass Military Reservation, 5400 Lindberg Ave, Buzzards Bay
4. **Eagles Nest**, 102nd Fighter Wing, Mass Military Reservation

Call for bus reservations (774) 810-6101 or (774) 810-6102
To sponsor a bus call (774) 810-6102

More News...

From the desk of Representative Perry...
Save Otis Resolution Passes House Today!

BOSTON - Representative Jeffrey Davis Perry (R-Sandwich) and Representative Susan Williams Gifford (R-Wareham) are very pleased to announce that a Resolution (see below) to keep the 102nd Fighter Wing at Otis passed the Massachusetts House of Representatives today!

From the State House, Representative Perry said, "I believe that all elected officials must stand together and do whatever we can to save Otis. If each of us does everything in our power, we stand a better chance of keeping the 102nd where it belongs, on Cape Cod. The resolution will be delivered to the BRAC Commission to show the wide scale support across the Commonwealth to save Otis! "

Representative Gifford added, "I'm sure you've heard those elected officials facing base closures as well using that great quote, "We have not yet begun to fight." Well, we've been fighting for years for this base, for the lease extension, and we will continue to fight for our defense, our jobs and our economy."

The Sandwich Republican Town Committee (SRTC) is also taking action to help save Otis Air National Guard Base from closure. The SRTC is building a "Save Otis" float that will be entered in the annual July 4th parade in Sandwich. They are also purchasing several hundred "Save Otis" signs in conjunction with State Representative Jeffrey D. Perry. The signs will also be carried by SRTC members and other concerned citizens who wish to march in the July 4th parade with us to show their support. Subsequently, these signs will be offered to individuals throughout Sandwich and surrounding towns. If you are interested in volunteering to help the cause, and would like to march with a sign or display one in your yard, please contact Dennis Fonseca at 508-362-9283.

COPY OF RESOLUTION PASSED TODAY:

SUPPORTING THE CONTINUED OPERATION OFOTIS AIR NATIONAL GUARD BASE AS THE HOME OF THE 102nd FIGHTER WING.

WHEREAS, THE DEPARTMENT OF DEFENSE HAS RECOMMENDED THE CLOSURE OF OTIS AIR NATIONAL GUARD BASE TO THE 2005 BASE REALIGNMENT AND CLOSURE COMMISSION; AND

WHEREAS, OTIS AIR NATIONAL GUARD BASE HAS BEEN AN INTEGRAL PART OF THE MASSACHUSETTS MILITARY RESERVATION LOCATED IN UPPER CAPE COD SINCE 1935; AND

WHEREAS, THE MASSACHUSETTS MILITARY RESERVATION UNIQUELY COMBINES ARMY, AIR FORCE, AND COAST GUARD UNITS IN A SINGLE LOCATION IDEALLY SUITED FOR THE INTEGRATED OPERATIONS OF HOMELAND SECURITY IN THE 21st CENTURY; AND

WHEREAS, THE MASSACHUSETTS MILITARY RESERVATION IS A CRITICAL COMPONENT OF THE ECONOMY OF UPPER CAPE COD, PROVIDING MORE THAN 500 JOBS AND SUPPORTING MANY LOCAL BUSINESSES, AND ITS CLOSURE WOULD BE A HEAVY BLOW FOR THE SURROUNDING COMMUNITIES; AND

WHEREAS, THE LANDING STRIP AT OTIS IS ONE OF THE FEW PLACES IN AMERICA WHERE THE SPACE SHUTTLE CAN LAND IN AN EMERGENCY; AND

WHEREAS, THE CLOSURE OF OTIS WOULD SERIOUSLY JEOPARDIZE THE VIABILITY AND CONTINUED OPERATION OF THE COAST GUARD AIR STATION AND THE ARMY NATIONAL GUARD FACILITY AT THE MASSACHUSETTS MILITARY RESERVATION; AND

WHEREAS, THE ELIMINATION OF THE 102nd FIGHTER WING WOULD SEVERELY IMPACT THE ABILITY TO PUT PLANES IN THE SKIES OVER NEW ENGLAND QUICKLY IN THE EVENT OF A SECURITY EMERGENCY, THEREBY CREATING A NEW TERRORISM VULNERABILITY; AND

WHEREAS, EVERY ELECTED OFFICIAL FROM CAPE COD, TOGETHER WITH GOVERNOR ROMNEY, THE UNITED STATES SENATORS FROM MASSACHUSETTS AND MEMBERS OF THE MASSACHUSETTS CONGRESSIONAL DELEGATION, HAVE EXPRESSED THEIR STRONG SUPPORT FOR THE CONTINUED OPERATION OF OTIS AIR NATIONAL GUARD BASE; AND

WHEREAS, THE COMMONWEALTH HAS DEMONSTRATED ITS COMMITMENT TO OTIS AIR NATIONAL GUARD BASE BY EXTENDING THE LEASE OF THE MASSACHUSETTS MILITARY RESERVATION IN 2003; THEREFORE BE IT

RESOLVED, THAT THE MASSACHUSETTS HOUSE OF REPRESENTATIVES RESPECTFULLY REQUESTS THE BASE REALIGNMENT AND CLOSURE COMMISSION TO RECONSIDER ITS RECOMMENDATION AND SUPPORT THE CONTINUED OPERATION OF OTIS AIR NATIONAL GUARD BASE; AND BE IT FURTHER

RESOLVED, THAT THE MASSACHUSETTS HOUSE OF REPRESENTATIVES URGES THE DEPARTMENT OF DEFENSE TO CONTINUE TO OPERATE THE OTIS AIR NATIONAL GUARD BASE AS THE HOME OF THE 102nd FIGHTER WING; AND BE IT FURTHER

RESOLVED, THAT A COPY OF THESE RESOLUTIONS BE FORWARDED BY THE CLERK OF THE HOUSE OF REPRESENTATIVES TO THE SECRETARY OF DEFENSE, TO THE CHAIRMAN OF THE JOINT CHIEFS OF STAFF, TO THE UNITED STATES SENATORS FROM MASSACHUSETTS, TO THE CONGRESSMAN FROM THE 10th CONGRESSIONAL DISTRICT OF MASSACHUSETTS, AND TO THE BASE REALIGNMENT AND CLOSURE COMMISSION.

SPONSORED BY:

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Rep. Mary S. Rogeness
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Rep. Christopher G. Fallon
Rep. Michael F. Rush

....SEND A DONATION

Otis Civilian Advisory Council (OCAC) has started this fund with a $1,000 contribution. All monies received will go directly to this effort for buses on July 6th, flyers, signs, tee shirts and bumper stickers. People wishing to financially support this grass roots campaign can send donations two ways: Through the U.S. mail. Address: OCAC, **PO Box 651, Falmouth, MA 02541. Make** checks payable to The Otis Civilian Advisory Council. Or you may also donate online through ***PayPal*** by clicking the button below:

Make a Donation

On behalf of the committee I want to thank you for participating in this important community effort.

Regards,
Christine Ross
Executive Director Falmouth Chamber of Commerce
Chair Communications Sub-committee, Save Otis Coalition

OTIS COALITION E-NEWSLETTER

www.saveotis.com

A Message from the Grassroots Movement to Save Otis Air National Guard Base July 8, 2005

Thank you for signing up for the Otis Coalition Newsletter. We hope that this weekly communication will help keep you abreast of the activities relating to the BRAC process. Feel free to pass this along to friends who might feel compelled to aid us in this quest to keep the base open. We appreciate your interest!

Thank you to those supporters that attended the rally in Boston on Tuesday. The rally and presentation by our political leaders was a success. Click on the following link to see some photos from the day. http://www.saveotis.com/rally.php

Next Meeting will be held at the Barnstable County Sheriff's office at 4PM, July 13, 2005.

BRAC Hearings can be viewed on CSPAN by clicking on **www.cspan.com**

Latest News

Thursday, July 07, 2005
Providence Journal Coverage

New England puts on colorful defense of its military bases

Official delegations from five New England states, including Rhode Island, and thousands of supporters turn out for a hearing on the military's plan to close bases in the region.

01:33 AM EDT on Thursday, July 7, 2005
BY MARK ARSENAULT
Journal Staff Writer

BOSTON -- The brusque military acronym, BRAC, is enough to send a shudder through any region that depends on military jobs. The Defense Base Closure and Realignment Commission has the power to remake whole communities, to either rescue military bases the Pentagon wants to abolish, or to doom them. Thousands traveled from around New England to a BRAC regional hearing in Boston yesterday, not to address the commissioners, but to be seen by them.

People opposed to the closing of Otis Air Base on Cape Cod wore baby blue T-shirts that read: "Keeping America's skies safe since 1973." Those fighting to save Naval Submarine Base New London dressed in red, white and blue. Their logo is "SOS," for Save Our Sub base. Supporters of Naval Shipyard Portsmouth could not be missed in their blazing yellow T-shirts. Seated on an elevated stage, the BRAC commissioners literally looked down upon governors, senators and representatives, leaders of industry and retired military brass who testified before them. The commission sat under hot white lights, at a long table draped in black, in a grand ballroom in the Boston Convention & Exhibition Center. Behind the commissioners stood flagpoles bearing the Stars and Stripes and the flags of the five New England states touched by the Defense Department's 2005 base closing proposal.

Connecticut would appear to have the most to lose, with the proposed shutdown of the submarine base in Groton. More than 8,000 civilian and military jobs are directly tied to the facility. In a somber defense of the submarine

base, U.S. Sen. Joseph I. Lieberman, the Connecticut Democrat and 2000 vice presidential candidate, told the commission: "I know some of you personally; it is an honor to know you. I have confidence you will not allow this base to close." Lieberman has put his trust in a nine-member commission made up of veterans of the military, of government and of industry, five of whom were in attendance:

BRAC Chairman Anthony J. Principi, a Vietnam veteran who commanded a river patrol in the Mekong Delta, and President Bush's secretary of veterans affairs.
James H. Bilbray, a former Nevada congressman.
Retired Air Force Gen. Lloyd W. "Fig" Newton. He opened the hearing yesterday with a reminder that excess bases must close, because every wasted dollar "is a dollar not available to save a Marine's life" in battle.
Samuel K. Skinner, a Cabinet officer and chief of staff for President George H.W. Bush.
Retired Air Force Brig. Gen. Sue E. Turner, who spent 30 years on active duty.
The presenters who addressed the commission have learned from past military closings that team spirit doesn't save bases -- facts do.

Much of the testimony was as dry as a math lecture:
Did the Defense Department miscalculate the total linear feet of the sub piers at New London? Did they lowball projected environmental cleanup costs at Groton? In a two-hour barrage, the Connecticut delegation challenged numerous assertions and nuances in the Pentagon's rationale for closing the submarine base. Their bottom-line argument was that the Defense Department erred in assessing the "military value" of the country's oldest sub base. At the end, Lieberman boasted that Connecticut's experts had blown so many holes in the Pentagon's case, "it looks like Swiss cheese, with more holes than cheese."

Likening the debate to a courtroom struggle, Lieberman said the "prosecutor" -- the Pentagon -- "has recommended a sentence of death for Sub Base New London." He told the commission in grave tones, "The power you have is literally life and death power over these facilities." Once shut down, the base would never reopen, he said. The commission sits as the jury for Submarine Base New London. "Your decision is final. It is terminal."

TWO FLOORS below the ongoing BRAC hearing, as Connecticut pleaded to save its sub base, the Massachusetts delegation warmed up supporters of Otis Air Guard base with an old-fashioned political rally. Several hundred Otis supporters, dressed in baby blue or Day-Glo green, crowded into a small meeting hall with U.S. Sen. Edward M. Kennedy; Sen. John F. Kerry, the Democratic Party's most recent presidential nominee; and Massachusetts' Republican governor, Mitt Romney. U.S. Rep. William Delahunt, D-Mass., boomed to the crowd, "As I look out here, I see a hell of a team." There were screams and cheers. "How absurd is it," he continued, "when a nation is at war, to dismantle one of the finest air wings in the country? Does that make any sense?" "Nooooo!" the crowd roared. "The closure of this base will not save the taxpayers one single dollar," Delahunt thundered. "And even more importantly, it will not make America any safer!"

ON THE sidewalk outside the convention center, in the humid air near the Boston waterfront, several dozen civilians assigned to the Boston Detachment of Naval Shipyard Puget Sound, assembled in matching forest green T-shirts that read: "Save the Boston Planning Yard." They waited for the Massachusetts delegation to begin its presentation. The Pentagon has proposed shipping about 100 jobs from the planning office to the West Coast. "We're being realigned," fumed Bill Kone, who works at the military planning detachment. "But it's really like it's being closed. We're here to show our support." He doesn't want to haul his family across the country to a new office. "I'm not going to move." Many of his coworkers won't move, either, he predicted. "Make sure you put in there that this move is not going to save any money," he said. Todd Cropper came from Ledyard, Conn., in his SOS T-shirt, in support of Sub Base New London. He realized he could not address the commission. The best he could do yesterday was show up. "It's a last-ditch effort," he said. "What else can we do?"

By lunchtime, yellow-clad supporters of Naval Shipyard Portsmouth swarmed the halls, as the New Hampshire and Maine delegations prepared to make their pitches to save some 6,900 jobs at risk under the Pentagon's plan.
John W. Flanders, a state representative from Kingston, N.H., said as many as 4,000 supporters of the shipyard were expected to travel by bus to the BRAC hearing. Will their presence do any good? "If 4,000 people show up, I would think they would take notice," said Flanders, a 78-year-old former Navy sailor who was discharged in 1946. "We don't want the place closed, otherwise I wouldn't be here." Across the street, at a construction site of a new

hotel, a worker on a crane spray-painted SAVE THE YARD in orange on an I-beam. People dressed in yellow applauded.

THE RHODE ISLAND delegation, led by U.S. Sen. Jack Reed, had the easiest job yesterday. The state fares well in the Pentagon's proposal: Naval Station Newport and the Quonset Point Air National Guard facility stand to gain more than 500 jobs. Rhode Island led off the hearing with a 30-minute presentation, the shortest of the day. At the time, there were barely 50 people scattered around a room that can hold perhaps 5,000. U.S. Sen. Lincoln D. Chafee, told the commissioners, "The Department of Defense recognized the value and importance of Rhode Island's military installations when it made its BRAC recommendations. I appreciate this, particularly in a round where many states face difficult closure recommendations." Though Rhode Island is expected to net 500 jobs, the local delegation complained about the several hundred positions scheduled to leave the state under the base-closing plan. They argued that Rhode Island should keep those jobs, in addition to getting the new ones. Other members of the Rhode Island delegation were Governor Carcieri, U.S. Rep. Patrick J. Kennedy, U.S. Rep. James R. Langevin, and Keith Stokes, executive director of the Newport County Chamber of Commerce.

The BRAC is due to make its recommendations to the president by Sept. 8. Here are the key dates in the base-closing process:
Sept. 8: BRAC commission submits recommendations to President Bush.
Sept. 23: Deadline for President Bush to accept or reject the plan in its entirety.
If the president accepts the plan, Congress has 45 legislative days to reject the recommendations in their entirety. If Congress takes no action, the recommendations go into effect.
If the president rejects the plan, the commission must submit revised recommendations by Oct. 20.
Nov. 7: Deadline for President Bush to approve revised plan and send to Congress. If there is no approval, the process ends.
April 15, 2006: Commission terminates.

....SEND A DONATION

We are still collecting funds to support the Otis Civilian Advisory Council's (OCAC) activities. All monies received will go directly to pay for flyers, signs, tee shirts, bumper stickers and the continuing advertising campaign. People wishing to financially support this grass roots campaign can send donations two ways: Through the U.S. mail.
Address: OCAC, **PO Box 651, Falmouth, MA 02541. Make** checks payable to The Otis Civilian Advisory Council. Or you may also donate online through ***PayPal*** by clicking the button below:

Make a Donation

On behalf of the committee I want to thank you for participating in this important community effort.

Regards,
Christine Ross
Executive Director Falmouth Chamber of Commerce
Chair Communications Sub-committee, Save Otis Coalition

OTIS COALITION E-NEWSLETTER

www.saveotis.com

A Message from the Grassroots Movement to Save Otis Air National Guard Base

July 21, 2005

Thank you for signing up for the Otis Coalition Newsletter. We hope that this weekly communication will help keep you abreast of the activities relating to the BRAC process. Feel free to pass this along to friends who might feel compelled to aid us in this quest to keep the base open. We appreciate your interest!

Latest News

WANTED: 10,000 LETTERS

The SAVE OTIS Coalition has started a campaign for members of the public to write and send 10,000 letters to BRAC commissioners in 10 days. It is critical that theses letters are delivered no later than **August 5, 2005**. The commissioners are Anthony J. Principi, James H. Bilbray, Philip Coyle, Adm. Harold W. Gehman Jr., James V. Hansen, Gen. James T. Hill, Gen. Lloyd W. Newton, Samuel K. Skinner and Brig. Gen. Sue E. Turner.

Letters to any commission member should be addressed to: BRAC, 2521 South Clark St., Suite 600, Arlington, VA 22202.

For greatest impact, you may want to incorporate the following points into your message:

Talking Points: Save Otis Letter Writing Campaign

- Urge the BRAC to reverse Pentagon plan to close Otis Air National Guard Base and split up the 102nd Fighter Wing.
- The 102nd Fighter Wing is responsible for patrolling the skies of the northeast for homeland defense. It is the closest 24 hour alert unit to intercept air traffic coming to USA, and has been activated on a regular basis. It was amongst the first on the scene on 9/11 and is one of the top fighter wings in the entire Air National Guard.
- The Otis Coalition contends that it makes no sense for our Country to dismantle one of its best fighter wings and close one of the nation's most important air defense installations, especially while our nation is at war.
- Otis ANG Base has a direct, indirect and induced annual economic impact of $82.3M in Massachusetts, most specifically on the Cape and south shore/coast.
- Otis ANG Base operates the base airport; provides base security and fire services water and sewer to all base tenants. It also supports the Coast Guard's Air Station Cape Cod, Coast

Guard fisheries training center and marine safety office, and new port security personnel; Army National Guard Camp Edwards. If Otis goes, then it means that all military, homeland defense and public safety operations --- including the Coast Guard --- are at risk.

- Other users of MMR include: Upper Cape Solid Waste Transfer Station; Cape Cod Septic System Test Center; Bourne Schools, VA National Cemetery; Barnstable County House of Corrections; USDA R&D facility; Air Force PAVE PAWS radar; Upper Cape Water Supply Reserve; FAA Air Traffic TRACON facility etc.

- GAO study documents cost of closing Otis to Coast Guard is at least $17 million and 100 new personnel. Cost to all other tenants not yet known. There is questionable cost savings.

- The servicemen and women of Otis ANG are neighbors, family, friends and part of our business community. Their departure will hurt our communities.

- Full time employment at Otis provides almost 500 jobs, representing more than 1 percent of total employment in the adjacent communities of Falmouth, Bourne, Mashpee and Sandwich. In the absence of robust job growth statewide, the loss of these full-time, benefited jobs is extremely meaningful.

- If Otis closes...there are no plans to operate the MMR base services that all military tenants require to perform their missions. We do not know who will provide water and sewer to the 600 military housing units; base security; operations of the airport; support to the FAA and the VA.

- There are no plans to provide replacement fire services to all MMR users, PAVE PAWS, or to suppress future fires in the northern 15,000 acres of the base, leaving the towns exposed to a significant public safety hazard.

- Closing the Otis ANG means loss of a strategically important airfield for defending the northeast. It is on Cape Cod, juts out into the Atlantic and provides almost immediate and unencumbered access for fighter jets.

- The MMR has a long range master plan --- with initial clearances from local state environmental agencies. It modernizes training facilities, establishes better homeland security training facilities for military and other first responders; and provides a home for expanded Coast Guard operations.

- Under construction is a new base fire station. Under design is a new air traffic control tower. Future construction plans at the MMR call for modernizing other military facilities to help build cost efficiencies and savings.

- The methodology for the BRAC review of Otis failed to take into account all the strategic military values of the installations and the value of all homeland defense operations prior to the Pentagon's recommendation. Otis was not given the same fair shake as other bases during this round of proposed base closings.

- We urge the BRAC to remove the Otis Air National Guard Base and save the 102nd Fighter Wing as part of its 2005 Base Realignment and Closure Recommendations.

....SEND A DONATION

We are still collecting funds to support the Otis Civilian Advisory Council's (OCAC) activities. All monies received will go directly to pay for flyers, signs, tee shirts, bumper stickers and the continuing advertising campaign. People wishing to financially support this grass roots campaign can send donations two ways: Through the U.S. mail - Address: OCAC, **PO Box 651, Falmouth, MA 02541. Make** checks payable to The Otis Civilian Advisory Council. Or you may also donate online through ***PayPal*** by going to the home page of www.saveotis.com and click on donation.

GAO REPORT ON BASE CLOSURES ASSESSES DOD'S SELECTION PROCESS AND RECOMMENDATIONS

www.gao.gov/docsearch/featured/brac.html

WASHINGTON, D.C., July 1. The Government Accountability Office (GAO) today released a mandated report assessing the Department of Defense's proposed base closure and realignment actions and the process used in making those recommendations.

On May 13, 2005, the Secretary of Defense submitted a list of 222 recommendations, involving 837 closure and realignment actions, to the Defense Base Closure and Realignment Commission. In accordance with law, GAO by July 1 is required to provide the congressional defense committees with a detailed analysis of the secretary's recommendations. GAO's report will also be made available to the independent Base Closure and Realignment Commission for use in completing its own legislatively required review of the secretary's recommendations and drawing up a final list of recommended closure and realignment actions, to be submitted to the president by September 8. The president, in turn, must either approve or disapprove the commission's recommendations in their entirety. Congress has final action to accept or reject these recommendations in their entirety later this year.

DOD's process for conducting its analysis was generally logical, reasoned, and well documented, GAO found. DOD had varying success in achieving its 2005 BRAC goals of (1) reducing excess in infrastructure and producing savings, (2) furthering transformation, and (3) fostering jointness, GAO reported.

"While we believe DOD's overall recommendations, if approved and implemented, would produce savings, there are clear limitations associated with the projected savings, such as the lack of military end-strength reductions and uncertainties associated with other savings estimates," GAO said, as it recommended that DOD develop mechanisms for tracking and updating savings estimates in implementing individual recommendations.

GAO focused much of its attention on evaluating major cross-cutting issues, identifying various issues that may warrant further attention by the commission.

GAO's report on the 2005 BRAC process, as well as past work on base closures, can be found on GAO's Internet site at http://www.gao.gov/docsearch/featured/brac.html.

GAO's Office of Public Affairs, 202-512-4800 GAO's Office of Congressional Relations, 202-512-4400

For your information.....

BRAC Hearings can be viewed on CSPAN by clicking on **www.cspan.com**

Next Meeting will be held at the Barnstable County Sheriff's office at 4PM, July 27, 2005.

Write those letters today!

Thank you

Christine Ross
Executive Director Falmouth Chamber of Commerce
Chair Communications Sub-committee, Save Otis Coalition

# # #

OTIS COALITION E-NEWSLETTER

www.saveotis.com

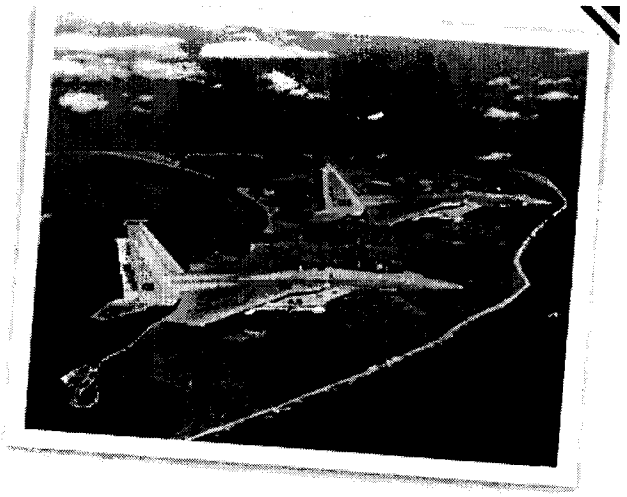
A Message from the Grassroots Movement to Save Otis Air National Guard Base

August 2, 2005

Thank you for signing up for the Otis Coalition Newsletter. We hope that this weekly communication will help keep you abreast of the activities relating to the BRAC process. Feel free to pass this along to friends who might feel compelled to aid us in this quest to keep the base open. We appreciate your interest!

Senator Murray sends letter and proclamation to the Commission....

For a view of the letter and proclamation visit the Save Otis website and link to:
http://www.saveotis.com/MurrayLetter.pdf



July 5, 2005

Base Realignment and Closure Commission
2521 Clark Street, Suite 600
Arlington, VA, 22202

Dear Commissioners:

On September 11th 2001, our nation went through a devastating tragedy. After that horrific morning, every person in the United States felt a new kind of vulnerability -- that we were no longer immune to terrorism.

It was clear that we needed to change course on the defense of our nation, and we need to be up in the air ready in the event of another attack.

On that tragic morning, Boston was intimately involved, not only because the flights originated at Boston's Logan International Airport, but because the 102d fighter wing out of Otis Air National Guard Base were the first to cover the skies in New York and Washington.

Since that day, the 102d fighter wing has flown missions, protecting the eastern seaboard from Canada to Washington against terrorist attacks -- a task for which the location of Otis Air National Guard Base is perfectly suited.

In addition, they fly missions over the Pilgrim Nuclear Power Station in Plymouth, protecting it from a terrorist threat and the millions of people that live in and around Plymouth.

It is clear the moving the fighter wing from Otis is one of the biggest homeland security mistakes that can be made.

There are other consequences of moving Otis as well, particularly economic. Even though the Pentagon has said that only 500 jobs will be affected, they are not taking into consideration the other tenants of the base -- for example, the Coast Guard uses the runways that are maintained by the Air

Guard -- or the jobs and economies of the surrounding communities. Closing this base would have major repercussions to the Upper Cape's economy.

I ask you to reconsider the closing of Otis Air National Guard Base and the movement of the 102d fighter wing. Keeping Otis Air National Guard Base open and the 102d fighter wing flying from Cape Cod is the right thing for the safety of the residents of Massachusetts and the nation.

Attached, please find a resolution signed by over two-thirds of the Massachusetts State Senate reaffirming the importance of reversing the Pentagon's recommendation to close Otis Air National Guard Base.

Sincerely,

SENATOR THERESE MURRAY
Chairwoman
Senate Committee on Ways & Means

Latest News

WANTED: 10,000 LETTERS

The SAVE OTIS Coalition has started a campaign for members of the public to write and send 10,000 letters to BRAC commissioners in 10 days. It is critical that theses letters are delivered no later than **August 5, 2005**. The commissioners are Anthony J. Principi, James H. Bilbray, Philip Coyle, Adm. Harold W. Gehman Jr., James V. Hansen, Gen. James T. Hill, Gen. Lloyd W. Newton, Samuel K. Skinner and Brig. Gen. Sue E. Turner.

Letters to any commission member should be addressed to: BRAC, 2521 South Clark St., Suite 600, Arlington, VA 22202. A link to suggested talking points for the letters follows: http://www.saveotis.com/writebrac.php

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RECENT NEWS ON THE LETTER CAMPAIGN.....

SAVE OTIS GROUP TO MOUNT MASSIVE LETTER-WRITING EFFORT

By Paul Gately/ pgately@cnc.com
Upper Cape Codder, Thursday, July 28, 2005

The Save Otis Coalition is trying to get its bank account back up to $10,000 to launch a letter-writing campaign designed to keep the 102nd Fighter Interceptor Wing on Otis Air National Guard Base.

The letters will focus primarily on the interconnected aspects of base tenants and how other Otis operations would be financially and logistically impacted should the Air National Guard wing's aircraft be reassigned to Florida and New Jersey. The goal is to send 1,000 letters and e-mail messages to the Base Realignment and Closure Commission in Washington, D.C.

Mark Forest, coalition chairman and Cape Cod aide to U.S. Rep. William Delahunt, D-Quincy, said time is running short. "The next three weeks are absolutely critical for us," he said. "We've got to move on this."

The primary arguments in keeping the 102nd on the Cape to date have focused solely on military preparedness and homeland security. Forest said this has shifted to legal arguments about the Pentagon not having the authority to reassign a National Guard wing without the consent of the governor.

"We didn't want to argue legalisms at first," Forest said. "But that seems to be the focus now. The consent of the governor is required, but the Pentagon is saying it may have unilateral authority when it comes to Guard issues."

Forest said the Pentagon has indicated it would seek a U.S. Department of Justice ruling on what the military can do in this regard. To that end, Delahunt has asked Massachusetts Attorney General Thomas F. Reilly to research the issue as well.

MORE ON IMPACTS....

POSSIBLE OTIS CLOSURE COULD EFFECT OFFSHORE RESCUES

By Peter A. Sutters, Jr.
The Inquirer & Mirror, Staff Writer
Nantucket, August 2, 2005

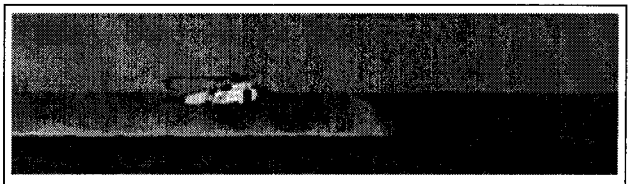

Photo by Nicole Harnishfeger
Otis Air National Guard Base in Falmouth plays a vital role in Nantucketers' lives. Search and rescue operations and medical transports are launched from Air Station Cape Cod located there, and the base is home to the 102nd Fighter Wing, whose F-15 fighter jets provide airborne homeland defense for the Northeast corridor. A Coast Guard helicopter was called to the island in July 2002 to rescue a woman who had drifted too far from the shore in a rubber raft.

Otis Air National Guard Base in Falmouth may be 30 miles across the water from Nantucket, but the services located at the base act like a safety tether, keeping the island from being all the more isolated from the mainland.

Coast Guard search and rescue teams at Air Station Cape Cod, which occupies a portion of the base, perform 275 to 300 missions a year, locating and transporting injured or stranded crew members from fishing boats and pleasure craft from the waters off Nantucket, Cape Cod and Martha's Vineyard. The Guard also makes about 70 medical evacuations from Nantucket and Martha's Vineyard to Boston hospitals when the weather is too dicey for commercial pilots to fly. On good weather days, the nonprofit Boston MedFlight handles medical transports from Nantucket Cottage Hospital, but the weather on Nantucket, including the fog that rolls in more often than not, can prevent MedFlight from responding, and the Coast Guard gets the call.

"The Coast Guard is our fall-back," said Dr. Tim Lepore, a surgeon at Nantucket Cottage Hospital. "They have saved the bacon on many occasions. We're never calling them when the weather is good. It's always for a horrible situation in really bad weather. It's not like these guys get to come out here on a good beach day." Yet Lepore and many others, from boaters and fishermen to emergency services personnel, are worried, because their "fall-back" may be in jeopardy. Otis was recently included on a list of military installations across the country recommended by the Department of Defense to be closed as a cost-saving measure. Almost as soon as the list was announced, politicians and citizen's groups began making the case as to why Otis should remain open.

The base, supporters say, is located in a strategic location for a variety of reasons, and in addition to the search and rescue operations, provides Homeland Security through the 102nd Fighter Wing of the Air National Guard, and air traffic control for the Cape and Islands through the Federal Aviation Administration. The Barnstable County House of Corrections is also located on its grounds. "The closing of Otis is a significant issue for us," Lepore said. "If they move somewhere else, I don't know how available they would be. There is simply no way

to stress how important a service they provide to the island. They come in rain, snow, fog and high winds. Boston MedFlight does a great job, but they have limitations." Nantucket Cottage Hospital officials have sent a letter opposing the closure to the federal Base Realignment and Closure commission (BRAC), which is responsible for reviewing the Pentagon's recommendations and presenting their findings to the president, who makes the final call.

"A critical link" Nantucket Fire Chief Everett Pierce said the proximity of the Coast Guard base at Otis is critical not only for the medical and rescue services it provides, but also because in the event of what he called a "major disaster," they would be the ones bringing in supplies and personnel to assist the island emergency services. "The Coast Guard helicopters are a critical link to the mainland," said Pierce. "Otis is the point of departure for goods and services in the event of a major disaster." Pierce said if an event such as an oil spill or major natural disaster like a hurricane were to occur, there are supplies stored at the Coast Guard station at Otis that could be flown to Nantucket in a matter of minutes. "We pray that something like that would never happen, but if it did, Otis is the place where help comes from," said Pierce.

Lepore and Pierce have some powerful allies. Congressman William Delahunt, whose 10th district stretches from Quincy to the Cape and Islands, is adamantly opposed to the base closure. "There is simply an overwhelming case against the recommendation (by the Pentagon to close the base). It's a no-brainer," Delahunt said Monday. "It makes no sense to dismantle one of the best fighter wings in the country." "We have continuously heard from fishermen and the hospital about the importance of having the Coast Guard so close to Nantucket," said Mark Forest, Delahunt's top aide on the Cape and Islands. "There is a great deal of boat traffic that takes place off Nantucket and those people rely on the Coast Guard for their rescue in the event of a disaster." Delahunt, along with Democratic Senators Edward Kennedy and John Kerry, and Republican Governor Mitt Romney, have been leading the charge to convince the BRAC that Otis is worth saving. Also joining the Massachusetts political delegation are private groups like the organization Save Otis and their citizen supporters.

Photo by Jim Powers
The view from a Coast Guard HH60 Jayhawk helicopter shortly after takeoff from Air Station Cape Cod during a training mission.

Some of the information used in the Pentagon's assessment of the necessity of having a base on Cape Cod was inaccurate, Delahunt said, a claim that was brought to the attention of BRAC by Sen. Kennedy at a July 6 BRAC hearing for the New England Region. "The Air Force miscalculated Otis' military value score, by not giving full credit for the high-quality airspace, and surge capacity," Kennedy told the commission, according to prepared statements provided by his office. "The military value formula did not adequately reflect the post-9/11 realities and left out homeland defense. Because of an erroneously low military value score, Otis was ignored when it was decided it still needed a fighter presence in the Northeast."

No cost savings

Both Delahunt and Kennedy also said in the event the base is closed, it would not save money in the long run. Delahunt said a study by the Government Accountability Office (GAO) found the cost of relocating the 102nd Fighter Wing to another base; training new pilots and refurbishing the new location would end up costing more. "If the goal is to save money, that is just not happening," said Delahunt. According to Kennedy's testimony, the closure would not save money. He cited the cost that would have to be absorbed by the other facilities on the base, primarily the Coast Guard, resulting in a wash for tax-payers.

"A letter from the commandant of the Coast Guard states he faces a Hobson's choice – either find an additional $25 million or more, or close down his fixed-wing operations," Kennedy said. The commanding officer of the Coast Guard at Otis agreed, but also said he would rather not be responsible for the upkeep of the airstrip if the 102nd is relocated. "We are a co-user of the Massachusetts Military Reservation, the 102nd is the landlord so to speak," said Captain

David Brimblecom. "We don't run any airports; we just don't have the finances that are necessary." Brimblecom said the Coast Guard operates on 28 airstrips around the country, 22 of which they lease land from at commercial airports, while the remaining six are on military bases, like Otis.

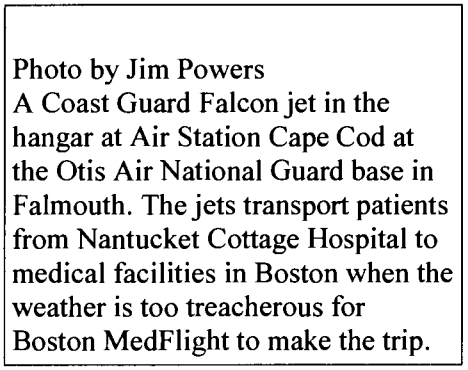

Photo by Jim Powers
A Coast Guard Falcon jet in the hangar at Air Station Cape Cod at the Otis Air National Guard base in Falmouth. The jets transport patients from Nantucket Cottage Hospital to medical facilities in Boston when the weather is too treacherous for Boston MedFlight to make the trip.

"To run an airport would be a challenge for us even if we could get the budget to do so," said Brimblecom. "We would prefer to be a tenant; we don't like to have that kind of infrastructure." Brimblecom said because the Coast Guard does not traditionally run an airport, it lacks the training to handle the day-to-day operations. He did say that if given the time and resources, it would be possible, but he would much prefer to just see the 102nd stay put. Brimblecom said his main concern about the closure was not financial or logistical; it was losing a key strategic location for launching one of the eight aircraft that are at the base, poised for takeoff at a moment's notice for search and rescue missions. "It's the only Coast Guard air station in the Northeast," Brimblecom said. "We're responsible for covering an area from northern New Jersey to the Canadian border with Maine."

Brimblecom said one of the four HH-60J helicopters or four HV-25 Falcon jets are supported by a total of 300 people at the base including 233 active-duty members, with 38 pilots among them, as well as additional support staff. When a distress call from the local fishing fleet or a recreational sailor gets called in to Nantucket there is a procedure followed which expedites the determination as to what type of craft – jet, helicopter or boat – will respond. "Typically in Nantucket the call will come from the Woods Hole (Coast Guard) group," Brimblecom said. "They will coordinate the proper response depending on the boat's location and proximity of other vessels in the area."

Perfectly positioned

Once the decision is made to send aircraft from Otis, the base's location on a cape jutting out into the Atlantic Ocean makes the mission that much simpler, Brimblecom said. "Being so close to offshore already, we can fly at low altitudes in bad weather and not be flying over homes, it's really an optimum location where we are," said Brimblecom. "We can quickly get to the offshore fishing fleets; a location further inland would present a challenge to reaching people at sea."

Delahunt agreed and sees the loss of Otis as a danger to Nantucket and the surrounding waters, both economically and literally. "Look at the implications for Nantucket. If Otis closes and the Coast Guard can't afford to assume all the cost, we're putting lives at risk," said Delahunt. "Especially on Nantucket with the commercial fishing fleet and the number of private boats that come there in the summer months." Delahunt went on to suggest that recreational boaters may think twice about a trip out to Nantucket if they consider it too dangerous of a trip with the lifeline of a Coast Guard helicopter too far away.

Another factor relating to the location of Otis, according to Delahunt, is a Pentagon Study conducted by an independent review board that suggested Otis would be a good site for a Homeland Security facility. "It's been proven it would be an ideal Homeland Security center," Delahunt said. In fact, long before there was a federal Homeland Security Department, and before the terrorist attacks that prompted its creation, Otis had been protecting the skies of the Northeast with F-15 fighter jets. Those were the were the very jets that were scrambled on the morning of Sept. 11, 2001 when four hijacked airliners were used as guided missiles to strike downtown Manhattan, N.Y., Washington, D.C. and Pennsylvania.

According to the 9/11 Commission Report prepared by an independent group of lawmakers in Washington, two F-15 fighter jets were scrambled from Otis at 8:56 a.m. by the North East Air Defense Sector (NEADS) after receiving word from air traffic controllers the planes had been hijacked. However, because the thought of using hijacked civilian planes to fly into buildings had not been considered by the military, there was no protocol for them to follow. The F-15's from Otis spent about five minutes in airspace off Long Island before being given orders to head to Manhattan. They arrived only minutes after the second plane struck the World Trade Center.

Nearly 3,000 people lost their lives that day, and supporters of Otis say if the unthinkable were to happen again, the F-15's that now fly on a continuous basis from Otis would be best prepared to protect the country.

"When I heard the news the base was going to close, I instantly remembered 9/11. I was listening to Imus on the radio and he said a plane had hit the World Trade Center and my wife called and said something must be up because the house was shaking because the F-15's were taking off," said Mashpee Fire Chief George Baker, who is also the spokesman for the group Save Otis. "That's the sound that says 'help is on the way'."

The Save Otis group, which also has a website, saveotis.com, rallies local support to pressure the BRAC against closing the base. "It's a situation of reverse-NIMBY, we want Otis to stay here in our back yard," said Baker. They sponsor letter-writing campaigns as well as distribute bumper stickers and T-shirts to show support. They also sponsored and organized a recent bus trip to Boston for the July 6 BRAC hearing for the New England Region. "If we look at the mission at Otis, it is critical to the security of the country," said Baker. "It's the best spot to defend the Northeast against a terrorist attack. There are nuclear power plants, transportation hubs, and the F-15's escort transatlantic flights to Bangor, Maine when someone on the no-fly list is on board."

Baker said along with stressing the mission of protecting the skies of the Northeast from another terrorist attack, the group attempts to highlight the other uses of the base. "What we try to tell the BRAC commission is that this is a joint-military operation," said Baker. "The 102nd is the lead tenant of the base, like an anchor store of a mall. Without them, the mall can't survive."

Another tenant in the mall that is Otis, is the Federal Aviation Administration air traffic control site, Cape TRACON. The FAA site is the last radar site on the mainland for planes coming into Nantucket Memorial Airport and is responsible for controlling planes from Plymouth to Providence. TRACON is responsible for the airspace in that area from zero to 10,000 feet and from July 2004 to June of this year, handled 244,797 air traffic operations, which include take-offs, landings and planes passing through the air space, according to Arlene Murray, spokesperson for the FAA Northeast region. She said the site employees 27 people, 24 air traffic controllers, two supervisors, one manager, and administrative personnel. Murray said the FAA is aware of the potential closure of Otis, but said it was too early to determine what would happen to TRACON if the base does close.

"If something occurred that impacted the facility, we would look at our situation and make a determination," said Murray, who added she could not speculate where the air traffic responsibilities would be relocated. Pat Topham, manager of the air traffic control tower at Nantucket, said the closure should have no effect on the airport, but also added it depended on what the FAA did if and when the base closed. Nantucket Memorial Airport manager Al Peterson seemed to agree with Topham's assessment. "The FAA is a separate agency. I would assume they would stay if the base closes," said Peterson before adding, "I'd prefer they stay." Peterson said in the event the FAA does pull out of Otis Air Force Base, Nantucket Memorial Airport would be absorbed into a larger air traffic control group. "We'd be fine, but we wouldn't get the personal attention we do now," said Peterson.

The final tenant housed on the grounds of Otis Air National Guard Base is the Barnstable County House of Corrections, which houses Nantucket prisoners due to a lack of a jail on the Island. David Neal, assistant deputy superintendent for community relations for the Barnstable County Sheriff's office said if the base closed, there would be an impact to the jail, but it would be minimal. "We would still be able to run the facility in the event the 102nd left," Said Neal. He said there were some issues, such as sewer treatment and plowing of roads that are now handled by the 102nd that would have to be worked out, but overall the jail is expected to survive in the event of a closure. "Much of our energy has been focused on saving Otis rather than working on a plan B," said Neal. He said that if in September, the announcement is made the base is going to close, they will begin to explore other options and that if it did close there would be a period of a few years before it is completely closed.

"There is plenty of time to come up with a plan B," said Baker. In the event of a closure, thousands will be scrambling for a plan B. The employees of the base, the local communities that rely on the base to support their

local economies, boaters at sea, pilots navigating the skies, and to an extent all Americans who will no longer live under the security of the military presence of the F-15's of the 102nd Fighter Wing, will all be looking for somewhere else to turn.

MORE LETTERS OF SUPPORT.....

July 25, 2005

Base Realignment and Closure (BRAC) Commission
2521 South Clark Street
Suite 600
Arlington, Virginia 22202

Gentlemen:

The Cape Cod Commission opposes the Department of Defense's proposed closure of Otis Air National Guard Base. We are very concerned about the effect such a closure would have on the viability of the Massachusetts Military Reservation (MMR) and on the economy of Cape Cod. Furthermore, the closing of Otis would undermine the effectiveness of homeland defense in New England.

The Air National Guard presence is an important component of the overall master plan for the base and provides vital support for the installation's infrastructure. Were the Air National Guard to leave, it is highly unlikely that the Coast Guard and Army National Guard would be able to absorb the base's maintenance and operational costs. Thus, the viability of the entire base and the carefully crafted master plan is at risk.
Closing Otis would dramatically degrade air fighter coverage for the Boston metropolitan region and would weaken the joint operations of the Army National Guard and Coast Guard at the MMR. Otis also provides hundreds of civilian jobs, which are a very important component of the economic stability of the Upper Cape region.

As the regional land use planning agency for Barnstable County, the Cape Cod Commission headed a community master planning effort for the MMR in the late 1990s.
Through this process the Cape community agreed upon an innovative plan for the MMR to ensure that future military activities would both meet modern training needs and respect the Cape's sensitive environmental resources.

A coalition of federal, state, county and town officials, as well as citizens from all walks of life has formed to oppose the base closure recommendation. The Cape Cod Commission (a nineteen member body, made up representatives from all fifteen Cape towns as well as several special appointees) supports that effort, and urges you to carefully weigh the analysis presented by our legislative delegation at your July 6, 2005 hearing in Boston.

The Cape Cod Commission hopes to continue to work for the successful integration of the military training and environmental management that has been the hallmark of activity at Otis. We trust that, through your positive recommendation for the retention of the Otis Air National Guard base, that the proven ability of the military and the local community to work together to ensure military readiness and protection of our environment may continue.

Thank you for your consideration.

Sincerely,

Alan Platt, Chairman

cc: Senator Edward Kennedy
Senator John Kerry
Congressman William Delahunt
Governor Mitt Romney
Cape Legislative Delegation
Colonel Paul Worcester
Boards of Selectmen

For your information.....
BRAC Hearings can be viewed on CSPAN by clicking on www.cspan.com

Next Meeting will be held at the Barnstable County Sheriff's office at 4PM, August 3, 2005.

Write those letters today!

Thank you

Christine Ross
Executive Director Falmouth Chamber of Commerce
Chair Communications Sub-committee, Save Otis Coalition

OTIS MUST BE SAVED

FIVE WAYS YOU CAN MAKE A DIFFERENCE

1. SEND A DONATION

OCAC has started this fund with a $1,000 contribution. All monies received will go directly to this effort for buses on July 6th, flyers, signs, tee shirts and bumper stickers. People wishing to financially support this grass roots campaign can send donations two ways: Through the U.S. mail. Mailing Address:

OCAC, PO Box 651, Falmouth, MA 02541 Checks payable to the **Otis Civilian Advisory Council**.

1. Donate on line through PAYPAL by clicking the "Make a Donation" button on the website
2. OCAC is a civic organization and therefore contributions are non-tax deductible.

2. WRITE TO THE BRAC COMMISSION

Tell them how much the base means to the safety of Cape Cod and the country. Mailing Address: **BRAC Commission, 2521 South Clark Street, Suite 600, Arlington, VA 22202**

The BRAC Commission web site is **www.brac.gov**. The BRAC Commission is appointed by the President and Congress to provide an independent review and analysis of the recommendations made by the Defense Department.

3. SIGN UP TO ATTEND THE JULY 6TH HEARING ON BEACON HILL

We want to invite you to the New England Regional BRAC Commission Hearings on July 6th. A Coalition of supporters will be traveling from Cape Cod to advocate to save Otis. We need you to attend and bring a friend to the rally to show the BRAC Commissioners our support. The event will be held at the Boston Convention and Exhibition Center, 415 Summer Street, Boston, MA. Bus rides to Boston will be available with various pick up points along Routes 6 and Routes 3, and also from 495 and 24. Sponsors are needed to pay for buses and refreshments that day. A complete schedule for the day with details will be forthcoming.

For Bus Reservations Call (774) 810-6101 or (774) 810-6102.
To Sponsor a Bus Call (774) 810-6102. Please stand by for additional details.

4. ENCOURAGE YOUR FRIENDS.

To Support the Coalitions efforts to Save the Otis Air National Guard Base, and stay up to date with the coalition by registering for our newsletter.

5. WWW.SAVEOTIS.COM

Remember to check in regularly for the latest news on the website generously donated by Falmouth based Web Development Company, Genevate Corporation.

Signup on the website to receive regular updates. **SAVE OTIS!**

MMR Master Plan Report Summary

-- EXECUTIVE SUMMARY --

Massachusetts Military Reservation Master Plan Final Report

Prepared in Conjunction with the Community Working Group by the Cape Cod Commission
Fall 1998

Development of a New Master Plan

Background

A glance at almost any map of Cape Cod reveals a massive wooded area on the Upper Cape that is largely undeveloped, but fringed with highways, homes and other development. This area, known formally as the Massachusetts Military Reservation (MMR), consists of approximately 20,000 acres, located in the upper Cape towns of Sandwich, Bourne, Mashpee and Falmouth. Home to the Army and Air National Guard, U.S. Coast Guard, and a number of other agencies, the MMR has been used for over a half century for a variety of military training activities. In recent years the MMR has become widely known for its groundwater contamination problems. It was declared a Superfund site in 1989. Perhaps less well known is its recognition by the Massachusetts Natural Heritage Program as one of the most ecologically significant areas in the northeastern United States.

Future uses of the MMR -- both military and civilian -- are of great interest to Cape Codders. Decisions about the fate of this area will have a tremendous impact not only on the four communities in which the MMR lies, but on Cape Cod as a whole.

In Spring 1998, the Massachusetts Executive Office of Environmental Affairs (EOEA) found that the draft Environmental Impact Report/Environmental Impact Statement for specific military projects at the MMR was inadequate. Because of the complexity of the project, a special review procedure was established for an overall Master Plan for the MMR. The Master Plan Report has been prepared through the cooperative efforts of a Community Working Group comprised of Cape Cod residents, National Guard and Coast Guard personnel, state officials, members of the Cape's legislative delegation, the Cape Cod Commission, and hundreds of Cape Codders who took the time to participate in public hearings and submit thoughtful comments.

The overall vision articulated by this Master Plan Report is to focus future civilian and military development in or near the Cantonment Area, a 5,000-acre area in the southern portion of the MMR, while protecting the rare grassland habitat located in this area. This would allow approximately 15,000 acres in the northern portion of the MMR (approximately 3/4 of the MMR) to be reserved primarily as open land to be protected and managed for water supply, wildlife habitat, open space and compatible military uses.

In June 1997 the Executive Office of Environmental Affairs awarded a $75,000 grant to the Cape Cod Commission to work with the Community Working Group and the military to prepare the Master Plan Report. The goal of the Master Planning process was to achieve consensus on the long range military and civilian uses of the MMR. The final product was to include a future land use plan for the reservation, an analysis of the capacity limits of the natural resources and infrastructure of the base and surrounding communities, a plan for future water supply and a plan for open space.

The major issue associated with the MMR for the last two decades has been the clean up of contaminated groundwater. Finding new sources of water is increasingly more difficult for the Upper Cape Water Districts as suitable land is developed and environmental regulations become more stringent. In order to meet future demands, it is imperative that the Upper Cape arrive at a regional water resource management plan that will guarantee sources of high quality untreated drinking water without compromising the ecological integrity of the aquifer and its associated surface waters.

The Community Working Group (CWG) held a series of public hearings between October 1997 and July 1998 to solicit input from Cape Codders on proposed future uses and activities on the MMR. The public hearings helped create a vision for the overall Master Plan Report. The public overwhelmingly supported protection of the MMR for future water supplies for the four Upper Cape towns.

In response to comments raised at the public hearings, the CWG adopted Guiding Principles for the MMR Master Plan Report (see below) in February 1998. These Guiding Principles represented a consensus by the members of the CWG and provided a framework for evaluation of proposed future uses and projects at the MMR, as well as the overall Master Plan Report.

Guiding Principles for the MMR Master Plan Report

Adopted February 28, 1998

- The goal of the Master Planning process is to achieve consensus on the long range uses on the MMR for the foreseeable future.
- The planning process will involve full participation by all interested parties and will serve as a Cape Cod model for community-level conflict resolution.
- The Plan will be comprehensive, including both future civilian and military uses of the MMR.
- Cumulative environmental impacts will be considered in making decisions about future uses.
- Economic impacts will be considered in evaluating proposed uses.
- The Barnstable County Regional Policy Plan, Local Comprehensive Plans and Water District plans of surrounding towns, as well as military plans and policies will be used as a guide in the planning process.
- Resource management and carrying capacity issues will have priority in the planning process.

- Future uses will be consistent with sustainable development principles.
- The Plan will protect existing and future drinking water supply areas by protecting their Zones of Contribution.
- The Plan will protect surface water resources by providing buffers around these areas and protecting them from adverse hydrologic impacts.
- The Plan will take into account what has been learned about contamination of the MMR through the Installation Restoration Program and will not hinder ongoing clean up, containment and/or monitoring of contaminated areas.
- The Plan will incorporate the results of ongoing groundwater studies, including the Impact Area Groundwater Study and the Regional Water Supply Study and Development of MMR and Upper Cape Cod.
- The Plan will propose uses that minimize adverse impacts on rare species habitat and enhance management of these and other important habitats.
- The Plan will minimize fragmentation of forest habitat and other natural areas.
- The Plan will foster the creation of permanent open space areas, linking existing forests and refuges within and adjacent to the MMR.
- The Plan will support the development of non-polluting alternative energy sources on the MMR.
- Proposed uses will demonstrate that adequate infrastructure exists or can be provided to serve the proposed use while minimizing impacts to natural resources or community character.
- Impacts on residential areas by proposed uses will be minimized.
- Proposed uses will respect and/or reflect the history and traditions of Cape Cod.
- Proposed uses will minimize impacts to areas of archaeological significance.
- The Plan recognizes the role of military operations and public safety at the MMR and seeks to successfully integrate those operations with environmental protection.

Military Projects Review

The CWG evaluated 10 projects originally proposed by the Massachusetts National Guard for their consistency with the Guiding Principles for the MMR Master Plan Report. Each of the projects included two or three alternative locations for consideration. The proposed projects were as follows:

Military Range Projects

Modified Record Fire Range (MRFR): Live-fire qualification range used to train and qualify soldiers on the M16 rifle.

Multi-Purpose Machine Gun Transition Range (MPMR): Live-fire range designed to train and qualify soldiers on various machine guns and the sniper rifle.

Infantry Squad Battle Course (ISBC): Live-fire range where infantrymen conduct small group tactical movements and attack mock enemy positions using M16 rifles and various machine guns.

Military Operations on Urbanized Terrain-Military Assault Course (MOUT-MAC): Live-fire range designed to train individuals or small groups on specific techniques used in urban combat situations using M16 rifles and machine guns.

Military Operations on Urbanized Terrain-Collective Training Facility (MOUT-CTF): Continuation of MOUT-MAC, using group training techniques.

Military Cantonment Projects

Unit Training Equipment Site (UTES): A facility to store and maintain vehicles and equipment used for troop training at Camp Edwards, designed to renovate or replace existing UTES.

Airfield Control Tower: A 530 square foot (s.f.) five-story control tower and air traffic control cab which houses controllers and equipment.

Aircraft Generation Unit Facility (AGU): An 18,000 s.f. hangar, workshop and office space for minor pre-flight maintenance and repair of aircraft assigned to MMR.

Fire Station: A 25,000 to 27,000 s.f. facility in the vicinity of the existing fire station due to its proximity to airfield operations and shortest response time to airfield and cantonment areas of MMR.

Environmental Facility: An 8,000 s.f. facility to house Air National Guard (ANG) environmental management and Installation Restoration Program (IRP) staff.

During the Master Plan process, Acting Governor A. Paul Cellucci, citing concerns about groundwater protection, removed from further consideration the five range projects proposed by the Army National Guard. Also during the process, the Air National Guard withdrew the Environmental Facility project because they no longer needed it. Remaining for further consideration in the Master Planning process was the Unit Training Equipment Site (UTES), Airfield Control Tower, Aircraft Generation Unit Facility (AGU), and Fire Station.

In June 1998 the CWG recommended the Airfield Control Tower, Aircraft Generation Unit, and Fire Station proposed by the Air National Guard for further environmental review and inclusion in the Master Plan Report. In July 1998 the CWG recommended several possible sites for consideration by the Commonwealth of Massachusetts for a consolidated vehicle maintenance facility (UTES) for use by the Army National Guard in the cantonment area.

Proposed Civilian Projects/Uses

The public offered suggestions for numerous future uses of the MMR during the public hearings. The CWG carefully considered every idea offered. Criteria used by the CWG to screen potential uses for further consideration included: uses that provide a public or

community benefit; compatibility with ongoing military activities in the cantonment area; potential impact on surrounding residential areas; land area needed for the proposed use; potential impact on existing and potential water supplies; potential impacts on natural resources and wildlife habitat; potential traffic impacts; projects that involved the potential reuse of existing buildings; and community support.

Virtually everyone involved in the process stressed that the MMR should not be a future location for new residential, commercial or industrial development because there were ample opportunities for these types of development elsewhere in the towns. The CWG also believed that these uses would generate significant traffic and create potential conflicts with ongoing military operations. After a full review, the following projects were screened by the CWG for further evaluation and incorporation into the Master Plan Report. The CWG evaluated each of the following uses in terms of required land area, environmental impacts (e.g., traffic, water, sewage, habitat), community support and consistency with the adopted Guiding Principles for the Master Plan Report:

Multi-Purpose Ballfields: Construction of up to 10 playing fields, including soccer, football and baseball/softball for use by the general public and base personnel.

Recreational Trails: Development of Cape Cod Pathways trail linkages through the MMR which would provide an east-west linkage from Sandwich to Bourne, as well as a north-south linkage with the town of Falmouth.

Golf Course: Construction of an 18-hole executive course, such as a par 3 type course, adjacent to the existing Coast Guard golf course.

Environmental Technology Center/Research Facility: A total of 75,000 to 150,000 s.f. on approximately 40 acres of land located on South Outer Road for a variety of research and technology uses.

Upper Cape District Courthouse: A 15-acre site for potential development of a District Court facility to serve the Upper Cape.

Cultural and Educational Center: Development of a center for peace/conflict resolution, indigenous peoples, and/or a military history museum.

Mashpee Town Cemetery: An approximately 20- to 25-acre site proposed for a town cemetery located north of Kittredge Road near the Falmouth gate.

Alternative Energy Facility: Development of wind power in the northern portion of the MMR.

In addition, the Community Working Group reviewed a series of proposed sites for two other key regional facilities: the Barnstable County Jail and House of Correction and the Steamship Authority Parking Lot.

Barnstable County Jail and House of Correction

Initially, a site on the northeastern edge of the MMR, adjacent to Route 130 in Sandwich, was proposed. The Sandwich site was reviewed by the CWG at several meetings; however, after extensive discussion, the CWG recommended that a jail and correctional facility at this site be reviewed within the context of the Master Plan Report. Acting Governor Paul Cellucci later required that the site be withdrawn based on community opposition. This opposition stemmed from concerns about the site's proximity to potential water supplies on the MMR as well as other environmental and community impacts.

A few months after the Sandwich site was withdrawn, state and county officials unveiled three additional alternatives on the MMR that had been agreed to by military officials. Site 1 was located near the radar station known as the PAVE PAWS installation at the northern end of the base. Sites 2 and 3 were located in the southeast corner of the base near the wastewater treatment facility. For the next several months, the CWG reviewed the three alternatives in detail. Sites 1, 2, and 3 were the subject of discussion in each of the four towns surrounding the base. Local officials and residents expressed concern for the proximity of alternatives 2 and 3 to Coast Guard housing and residential areas just outside the Falmouth gate and potential traffic impacts from the facility. Based on input from the surrounding communities, the CWG urged the military to work with Commission staff to develop additional alternatives for consideration.

Commission staff met with military and Coast Guard officials in July 1998 to explore additional alternative jail sites on the base. Based in part on the Guiding Principles for the Master Plan Report, the following criteria were used to evaluate additional alternative jail sites:

- location within or close to the cantonment area
- adequate distance and buffering from residential uses
- location outside of accident potential zones (air safety)
- no identified rare or endangered species on site
- safe access that minimizes traffic conflicts
- access to sewage collection and treatment facilities
- gentle topography

On July 24, 1998, the CWG recommended three sites for further environmental review by the Commonwealth of Massachusetts for the new Barnstable County Jail and House of Correction: Two sites (A and B) on Pew Road (north of Connery Avenue) near the western edge of the base, and another site (C) at the corner of Howe and Turpentine Roads, adjacent to the current Army Guard vehicle maintenance area (UTES). (See Figure 1.) Upon adoption of these additional alternatives, the CWG did not recommend further environmental review of sites 1, 2, and 3. On August 17, 1998, the Howe Road site (Site C) was also dropped from consideration after objections from neighboring Sandwich residents.

Steamship Authority Parking

A parking facility for the Woods Hole-Martha's Vineyard Steamship Authority (SSA) was the other project considered by the CWG prior to completion of the Master Plan Report. The SSA approached the military for a remote parking facility on the MMR to accommodate a total of 4,800 parking spaces on approximately 35 to 40 acres of land to be built in phases over the next several years. The remote parking facility was the subject of extensive discussion during the Master Planning process.

The SSA presented a proposal to the CWG for a 4,800-car parking facility on the western edge of the base north of Connery Avenue. SSA proposed access to the site from Fredrickson Road, an existing dirt road which would be widened and paved in order to accommodate the proposed parking facility. CWG and state officials expressed concern for potential environmental impacts associated with the proposal, including fragmentation of an important greenbelt on the base and impacts to rare species habitat associated with the ponds. In January 1998 the CWG recommended that the Steamship Authority parking not be given accelerated review status.

The SSA submitted a revised proposal to the CWG in February 1998. In this modified proposal, all parking was located within a utility line right-of-way, also on the western edge of the base, with proposed access via Fredrickson Road. The CWG expressed similar concerns with the revised proposal as with the original plan and rejected both as inconsistent with the Guiding Principles of the Master Plan Report.

Recognizing the community's strong desire for the Master Plan Report to address the SSA parking issue, the CWG encouraged the SSA to work with military officials and Cape Cod Commission staff to find alternative sites within the cantonment area of the base. The CWG stressed that the Group would only support a temporary parking facility and that more permanent solutions needed to be addressed by the SSA through development of a long-range regional transportation plan. In July 1998 the CWG recommended three sites for further environmental review by the Commonwealth of Massachusetts as a temporary parking lot on the MMR to accommodate no more than 900 cars, for a period of not more than three years. (See Figure 2.)

All alternatives assumed use of the Main (Bourne) Gate for all Steamship Authority traffic. The following alternatives were recommended:

> Site A is located north of Connery Avenue , in the front portion of the 3600 area currently used by the Army National Guard as a convoy staging area.
> Site B is located south of Connery Avenue between the VeteranÕs Administration National Cemetery eastern boundary and Army National Guard Leadership Reaction course.
> Site C is located on Turpentine Road and Howard Road, in the 3500 area, adjacent to an area used by the Army National Guard as an administrative area for convoy staging.

In addition to these sites, the CWG agreed to include a fourth temporary site if constructed in conjunction with potential jail sites A and B (Pew Road).

Proposed Land Use/Management Zones

The Master Plan Report for the MMR consists of three management zones for the approximately 20,000-acre military reservation. The largest management zone, which comprises about 15,000 acres in the northern portion of the MMR, is for the permanent protection and coordinated management plans for water supply, wildlife, and open space protection, consistent with necessary and compatible military activities. A second management zone totaling approximately 1,700 acres surrounds the base airfield. This management zone is designed to enhance and protect existing grasslands habitat for rare species. The plan proposes to gradually eliminate underutilized base roadways within the grassland management zone to improve the quality of this habitat and reduce infrastructure maintenance costs. The third management zone consists of approximately 3,300 acres in the cantonment area of the base for new development. (See Figure 3.)

Cantonment Area Plan

The cantonment area plan provides for the consolidation and improvement of existing military and Coast Guard facilities while allowing for the proposed uses evaluated during the planning process. (See Figure 4.) Proposed new uses surround existing grassland habitat in a campus-like setting. The plan also incorporates redevelopment of existing buildings and use of already disturbed sites.

The following general use categories have been identified on the cantonment area plan for new development:

Coast Guard Housing Area: Additional open space/recreational areas as well as facade and design improvements to existing housing units are identified to improve the quality of life for the residents of the MMR. In addition to these improvements, existing resident support facilities are proposed to be relocated closer to base housing. Additional services in a village style development pattern are proposed to create a more compact form of development and allow residents to walk to various services. Additional recreational facilities for nearby base schools could also be considered.

Army National Guard Support Facilities: Existing Army National Guard support facilities are proposed to be consolidated into one area in the cantonment area plan.

Air National Guard Support/Environmental Services: Consolidation of these activities in two areas adjacent to the airfield are proposed. An additional gate to separate Air National Guard from potential civilian activities may be considered.

Open space/recreation: Potential uses include a golf course, ballfields, as well as other active/passive recreational uses.

Technology/Institutional/Infrastructure: Potential uses include an Upper Cape district court, Mashpee town cemetery, environmental technology and medical research uses, as well as the existing sewage treatment and transfer station.

Government Agencies: Uses such as U.S. Department of Agriculture as well as other state or county health, testing and research activities.

Cultural/Educational Center: Uses proposed for the center of the cantonment area overlooking the grassland habitat management zone. This center could be for a variety of educational and cultural programs as well as conflict resolution/peace programs.

Veteran's Administration National Cemetery: Expansion area identified in cantonment area plan.

Implementation

Environmental Review Process

Completion of the MMR Master Plan Report brings us to a turning point in the environmental review process. As the Massachusetts National Guard proceeds to prepare a DEIR/DEIS on the Master Plan (for which, we are told, an extension to January 1999 has been granted) it is appropriate for the Secretary to consider necessary community projects included in the Master Plan Report that should begin preparation of their own DEIRs. (The cumulative impacts of these projects will be addressed in the Guard's DEIR/DEIS). The Barnstable County Jail, which figured so prominently in the CWG's deliberations is an obvious example of such a project. The arguments for placing the environmental review process for future water supply wells on the MMR on an independent track are even more compelling (see Water Supply Protection, Development and Management section below).

Although submission of the draft MMR Master Plan Report to EOEA marks the completion of a major chapter in the history of the MMR, and of Cape Cod, the work of the Community Working Group is not at an end. The Certificate of the Secretary of Environmental Affairs creating the CWG (May 30, 1997) indicates that the CWG "is needed to assure adequate public participation and representation of surrounding communities in the *environmental review* of the currently proposed projects as well as those which may be developed in the master plan." (Emphasis added) The Secretary further provided that the CWG will be "in existence during the time required for this special review," that is, through completion of the Draft and Final Environmental Impact Reports.

Before work on the MMR Master Plan DEIR can proceed, the proponent must submit a "proposed Special Review Scope and Schedule for public notice and review." The CWG offered recommendations on the contents of that scope in 1997. The next task of the CWG will be to review the proposed scope, followed, in due course by review and comment on the DEIR.

On August 17, 1998, the CWG voted unanimously to recommend that the Barnstable County Jail and House of Correction and the development of public water supply wells

on the base be allowed to proceed with review through the Massachusetts Environmental Policy Act on an independent track from the rest of the Master Plan.

Water Supply Protection, Development and Management

Widespread groundwater contamination and rapid population growth have contributed to an impending water supply crisis on the Upper Cape. Projections of the shortfall range as high as 5 to 15 million gallons per day by the year 2020. The Joint Program Office, Upper Cape water suppliers and Long Range Water Supply Team are on the cusp of having the resources to begin a water supply development program. In addition to the exploration and facility planning aspects of this work, water supply development will require a rigorous environmental review process. This environmental review is complicated by the need to avoid existing and potential sources of groundwater contamination as well as the legal and institutional issues governing land use on the MMR. In addition, environmental review of the site specific issues that have confronted recent Upper Cape community water supply development efforts such as alternatives analysis and surface water impacts from water withdrawal will also be required. Groundwater protection strategies must be credible and consistent with Cape-wide standards as reflected in the Regional Policy Plan. Long range management will require a community consensus much like the Master Planning effort.

National Wildlife Refuge Proposal

The "Open Space Plan" of Section 8 of the full Final Report describes Congressman William Delahunt's proposal to designate the northern portion of the MMR as a wildlife refuge. The Mashpee National Wildlife Refuge, a 5,900-acre site in the nearby Waquoit Bay watershed, serves as a model for such cooperative arrangements. The Mashpee Refuge includes federal lands and land owned by the towns of Mashpee and Falmouth, the Commonwealth of Massachusetts, and private conservation groups. The agencies retain ownership of the land and have ensured its protection through an agreement that provides for cooperative management practices. The Fish and Wildlife Service has offered its assistance in achieving a similar arrangement for the MMR property, incorporating its open lands in the Mashpee National Wildlife Partnership.

MMR Oversight

The positive experience of the Community Working Group in dealing with the difficult issues of both military and civilian uses of the MMR in a context of environmental stewardship suggests that it would be fruitful to explore a similar, community-based approach to long-term oversight of the MMR. The "partnership" model of the Mashpee National Wildlife Refuge also offers a promising approach to shared responsibility for decision-making. We recommend that legislation be developed to create a new management model for the MMR that builds on these positive experiences. Such legislation could also deal with a problem repeatedly brought to the CWG's attention: the need for cost sharing by both civilian and military users of the infrastructure of the MMR.

Master Plan Report Approval and Review of Leases

On August 17, 1998 the Community Working Group voted to endorse this Master Plan Report. Regarding future legal arrangements for uses of the MMR, the Community Working Group also approved the following resolution:

The Community Working Group recommends to the Governor of the Commonwealth of Massachusetts that all existing leases and licenses at the Massachusetts Military Reservation be reviewed and amended where necessary to conform to the Master Plan approved on August 17, 1998, with special attention to the Group's decision on July 24, 1998, that there shall be "permanent protection and coordinated management plans for water supply, wildlife and open space in the northern 15,000 acres of the Massachusetts Military Reservation, as shown on the updated use zones map, and that actions be taken to successfully integrate these management plans with necessary and compatible military training and operational activities in conjunction with the Guiding Principles of the Community Working Group as adopted February 28, 1998."

Otis ANGB Economic Impact

UMASS DONAHUE INSTITUTE

Otis Air National Guard

Economic Impact Study

July 2005

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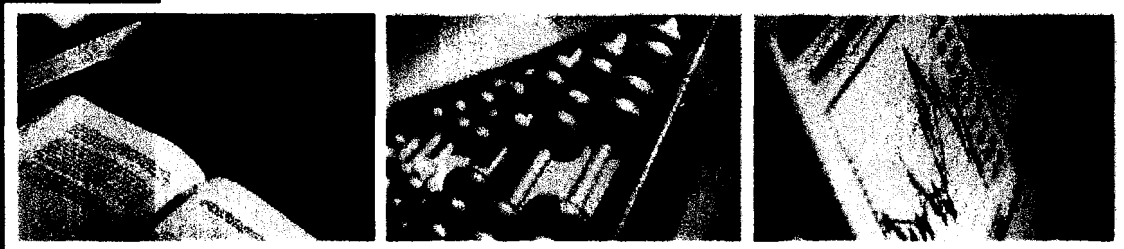
UMass Donahue Institute
Economic and Public Policy Research

Prepared for
Steven Wolfe Associates, LLC



Acknowledgements

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The authors would like to acknowledge the contribution of the following people to the completion of this report: Lt. Ken Nunley and his colleagues, 102nd Fighter Wing, Otis ANG; Captain David Brimblecom, U.S. Coast Guard; Mark Forest, Office of Congressman William Delahunt; Arthur Robert, Massachusetts Executive Office of Economic Affairs; Bill Burke, MassDevelopment; Steven Wolfe, Steven Wolfe Associates; Marie Oliva, Executive Director of the Cape Cod Canal Chamber of Commerce; and, the Save Otis Committee.

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Executive Summary

Economic Impact of the Otis ANG

The 102nd Fighter Wing of the Massachusetts Air National Guard (Otis ANG), through its payroll, contracting and other expenditures, had a direct, indirect and induced economic impact on the Commonwealth of Massachusetts in FY 2004 of $82.3 million. The economic impact is largely driven by the salaries and benefits paid to Otis ANG Base employees. In FY04, Otis ANG directly employed 559 full-time and 421 part-time workers who reside in Massachusetts. Total spending by the base and its employees is responsible for creating an additional 742 total jobs statewide with over $32.9 million in additional payroll. If the Otis ANG Base were a private employer, it would be one of the 12 largest employers in Barnstable County.

The UMass Donahue Institute conducted a thorough quantitative and qualitative analysis of the economic impact of payroll and expenditures at the Otis ANG Base. The analysis incorporated full payroll, contracting and other expenditure data from the 102nd Fighter Wing. The Donahue Institute interviewed staff from the 102nd Fighter Wing of the Otis ANG, U.S. Coast Guard, Massachusetts Army National Guard as well as representatives and officials from the adjacent communities and the fishing industry. The Donahue Institute utilized IMPLAN, an industry standard econometric modeling system for specifying indirect and induced economic impacts.

Statewide Economic Impacts of the Otis ANG

- In FY04, Otis ANG entered into $17.8 million in contracts with Massachusetts firms. Spending by these contractors and their employees generated an additional $12.4 million in economic activity across the Commonwealth.

- In FY04, the Otis ANG's largest in-state contracts were in Worcester County. Contracts in Worcester County generated a total of 229 jobs. Overall, Otis ANG payroll and spending had a $22.2 million economic impact in the county.

Economic Impacts of the Otis ANG on Cape Cod and Southeastern Massachusetts

- In FY04, Otis ANG directly employed 346 full-time and 100 part-time workers who reside in Barnstable County. Total expenditures by the Otis ANG and its Barnstable County employees created an additional 242 jobs in the county, with over $9.4 million in additional payroll.

- In FY04, Otis ANG operations had a total direct, indirect and induced economic impact in Barnstable County of $27.5 million. Most of the economic impact resulted from base employment and the additional jobs created in the county.

- In Plymouth County, the Otis ANG Base had an economic impact in FY04 of $11 million. Otis ANG directly employed 128 full-time and 84 part-time workers who reside in Plymouth County.

- In southeastern Massachusetts (Bristol, Barnstable and Plymouth counties), the Otis ANG Base directly employed 531 full-time and 245 part-time workers who live in the region. Total spending in the region by the base and its employees generated an additional 421 jobs, with over $16.2 million of payroll.

Seasonal Impact of Otis ANG Base Employment on the Upper Cape

The Otis ANG Base provides well-paying, full-time benefited employment for hundreds of Cape Cod residents who reside mostly in the four towns adjacent to the Massachusetts Military Reservation (Bourne, Falmouth, Mashpee and Sandwich). Base employment has a modest but measurable seasonal impact on the four adjacent

towns. In 2004, Otis ANG employment ranged from a low of 1.05 percent of total employment in the four towns in August 2004 to a high of 1.30 percent of employment in February 2004.

The Role of the Otis ANG on the Massachusetts Military Reservation

The Otis Air National Guard Base, home to the 102nd Fighter Wing of the Massachusetts Air National Guard (Otis ANG), is located on the Massachusetts Military Reservation (MMR). The MMR covers about 22,000 acres, or approximately 30 square miles, on the upper western portion of Cape Cod, including parts of the towns of Bourne, Mashpee and Sandwich and abutting the town of Falmouth. The U.S. Coast Guard, Army National Guard and Otis ANG occupy the southern portion of the reservation. The northern 14,700-acre section of MMR is used primarily by the Army National Guard for training exercises. The MMR also includes nonmilitary tenants, including the Barnstable County Sheriff's Office, two public schools, the U.S. Department of Agriculture, and a municipal Integrated Solid Waste Management Facility, among others.

- The Otis ANG, in its role as host tenant on the MMR, provides basic services to all MMR tenants, including: electricity, water, sewerage, communications infrastructure, fire protection and maintenance of main roads. MMR tenants reimburse the Otis ANG for the cost of the utilities consumed; the Otis ANG pays for all maintenance and capital costs for upkeep of the infrastructure. In FY 2004, the Otis ANG paid for over 76 percent ($6.5 million) of the cost of MMR basic services, including utilities, of $9.5 million.

- The Otis ANG pays 100 percent of the cost of operating the air field used by the U.S. Coast Guard and Army National Guard to execute their core missions.

Estimated Leave-Behind Costs

- The total annual cost of maintaining Base Operating Services (BOS) in FY 2005 dollars is estimated to be $15.8 million. The BOS is for baseline operating costs and does not include additional costs for capital spending, which vary from year to year. The U.S. Coast Guard estimates that it would need 129 additional FTE personnel to maintain full air field and base operations. The Army National Guard is currently evaluating the costs that it may have to absorb if the 102nd Fighter Wing leaves.

Estimated Fiscal Impact on the U.S. Coast Guard

- In FY 2005, the total budget for Coast Guard Air Station Cape Cod was $5.06 million. The U.S. Coast Guard would need an additional appropriation of $15.8 million, or 300 percent of current funds, to meet the total cost of air field and host tenant services.

- In addition to U.S. Coast Guard air operations, the MMR houses core Coast Guard services that support Coast Guard stations from Boston to Rhode Island. Many of those services – housing, medical services – cannot be readily relocated in the event that base operating services at the MMR are withdrawn.

Impact of the Closure on the U.S. Coast Guard and Coastal Communities

Air Station Cape Cod is located at the geographic center of the First District, between the Canadian border and northern New Jersey, and serves the region with the most intense fishing and boating activity in the northeast. Air Station Cape Cod protects New Bedford, the nation's top seafood port in terms of dollar value of catch and is a lifeline for off-shore fishing fleets. The Coast Guard is the emergency responder in inclement weather to Nantucket and Martha's Vineyard, New England's largest inhabited islands.

- The majority of Search and Rescue (SAR) responses in the First District occur between Cape Ann and Block Island.
- The Coast Guard averages over 50 medical evacuations by helicopter from the Islands every year.
- Air Station Cape Cod provides basic housing, medical and support services for Coast Guard Boat Stations throughout Massachusetts and Rhode Island.

The loss of the Otis ANG will place a significant burden on the U.S. Coast Guard to absorb some or all of the costs of the air field and MMR host tenant services. If the cost of providing base services proves prohibitive, one possible effect of base closure could be the relocation of the Coast Guard Air Station off Cape Cod. In interviews, the U.S. Coast Guard stated that under no circumstances would emergency response times increase above the maximum acceptable time of two hours. According to the Coast Guard, Cape Cod is the optimal location for the Coast Guard Air Station given its location at the geographic center of the First District and its proximity to the majority of the region's demand for Coast Guard search and rescue activity.

Section I: Economic Impact of the Otis ANG Base

In May 2005, it was announced that the 102nd Fighter Wing of the Massachusetts Air National Guard located at the Otis Air National Guard Base (Otis ANG) was listed on the preliminary base closing list of the Base Realignment and Closure (BRAC) Commission. The Otis ANG Base is held in high regard in the Commonwealth of Massachusetts due to its history and importance to the region's security. Subsequent to the BRAC Commission's announcement, the UMass Donahue Institute was asked to prepare an analysis of the economic impact of the Otis Air National Guard Base on the state, Barnstable County and southeastern Massachusetts. The core of this report in Section I consists of the economic impact analysis. In the course of preparing the economic impact analysis, additional questions were posed regarding the unique role of the Otis ANG in support of other operations at the Massachusetts Military Reservation. Sections II and III of the report consist of an analysis of the cost of services provided by the Otis ANG to tenants at the MMR, the impact of the proposed closure on adjacent municipalities, and the role of the U.S. Coast Guard Air Station Cape Cod in the region.

Section I: Economic Impact of the Otis Air National Guard Base

The Otis Air National Guard Base (exclusive of Combat Communications, which is not slated for closure by the BRAC Commission) had an economic impact in Massachusetts of $82.3 million in FY 2004. The economic impact is measured through the impact on the state of all direct expenditures by the Otis ANG, including: full and part-time payroll, contracts for supplies, equipment and services and other expenditures. Table 1, shown below, summarizes the direct expenditures and economic impact of the Otis ANG.

Table 1: Summary of Economic Impacts of Otis ANG, FY 2004

		Massachusetts	Barnstable	Bristol	Plymouth	Balance of MA
Direct Employment	Full-Time	559	346	57	128	29
	Part-Time	421	100	61	84	176
	Total	980	446	118	212	205
Employment Generated	Total	742	242	83	96	281
Direct Payroll	Total Payroll	$39,642,239	$22,363,040	$4,400,516	$8,878,993	$3,999,691
Payroll Generated	Total	$32,974,987	$9,433,113	$2,948,707	$3,848,042	$12,627,937
	Average Payroll per New Employee	$44,435	$38,983	$35,641	$40,011	$44,960
Direct Spending	Contracts	$14,284,224	$6,278	$1,330,498	$4,320	$12,943,128
	Purchases	$3,481,906	$977,485	$216,258	$167,517	$2,104,574
	Total	$17,766,130	$983,763	$1,546,756	$171,837	$15,047,702
Overall Impact	Employment	1,722	688	201	308	482
	Total	$82,257,054	$27,478,126	$5,837,039	$10,999,358	$29,024,349

Source: UMass Donahue Institute.

The economic impact of the Otis ANG on the Massachusetts economy is largely driven by the salaries and benefits paid to Otis ANG Base employees. In FY04, Otis ANG directly employed 559 full-time and 421 part-time workers who reside in Massachusetts.

The highest concentration of Otis employees reside in the towns closest to the MMR (Plymouth, Bourne, Mashpee, Falmouth and Sandwich). However, full and part-time employees live in communities throughout eastern Massachusetts. Figures 1 and 2 show the distribution of full and part-time Otis ANG employees in statewide (figure one) and in southeastern Massachusetts (figure two). Total spending by the base and its employees is responsible for creating an additional 742 total jobs statewide with over $32.9 million in additional payroll. The distribution of the economic impact statewide largely mirrors the distribution of Otis ANG employees by town of residence, with the exception of the impact of contracts and purchases, particularly in Worcester County.

Regional Impacts

Over half of the economic impact of the Otis ANG is in southeastern Massachusetts (Barnstable, Bristol and Plymouth counties). In FY 2004, the Otis ANG had an economic impact of $44.3 million in southeastern Massachusetts. The Otis ANG directly employs 531 full-time personnel who reside in the region. The greatest economic impact occurs in Barnstable County, home to the Otis ANG Base. The second largest economic impact is in Worcester County. Almost all of the economic impact in Worcester County can be accounted for by $12.8 million in construction contracts awarded in FY 2004 to firms located in that county.

Barnstable County

Barnstable County is home to the largest percentage of employees in the region (65 percent) and experiences the most substantial economic impact, $27.5 million. The Otis ANG is a significant local employer providing year-round, benefited jobs in a region with seasonal fluctuations in employment levels. If the Otis ANG Base were a private employer, it would be one of the 12 largest employers in Barnstable County.[1] The Otis ANG has a modest but measurable seasonal impact on employment on the Upper Cape. During the summer months, when employment in the four towns adjacent to the MMR is at its peak, the Otis ANG employment represents 1.05 percent of total employment. During the winter, when employment in the Upper Cape is at its annual low, Otis ANG employment is 1.30% of the four-town total.[2]

Worcester County

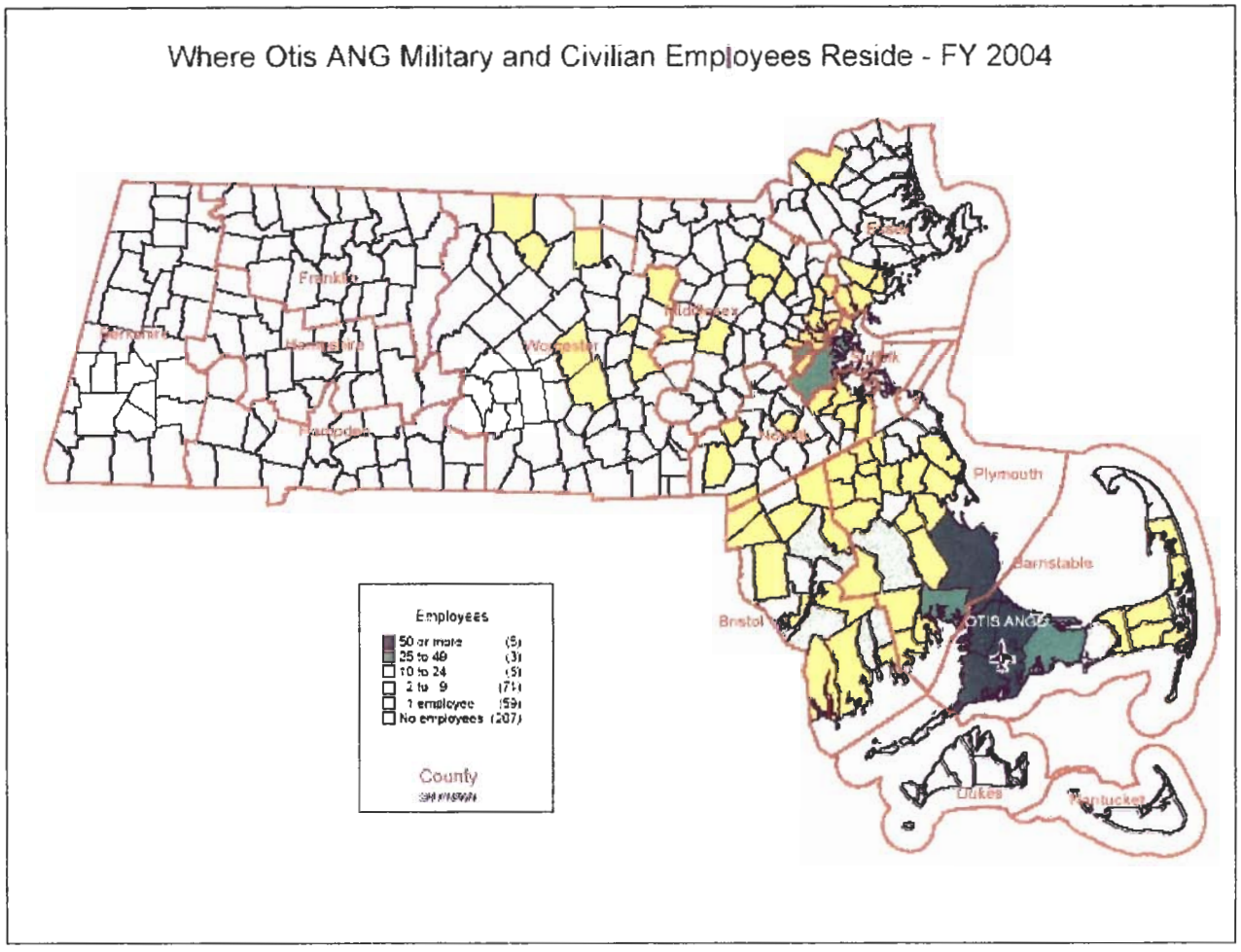
The economic impact of the Otis ANG in Worcester County illustrates the economic benefit to Massachusetts of construction and maintenance projects contracted through the MMR. The Otis ANG had an economic impact on Worcester County in FY 2004 of $22.2 million. $21.6 million of that impact is related to contracts (mostly construction related) awarded to firms based in Worcester County. The Otis ANG employed 34 people who reside in Worcester County and directly supported the employment of 147 workers through contracts. Otis ANG payroll and expenditures in Worcester County generated 88 additional jobs in the county.

Bristol and Plymouth Counties

The Otis ANG employs 128 full-time personnel in Plymouth County and 57 full-time personnel in Bristol County. In FY 2004, the economic impact in the two counties was $16.8 million, with two-thirds of this impact experienced by Plymouth County. 95 percent of the economic impact in Bristol and Plymouth Counties was generated by the spending by Otis ANG personnel who reside in those counties.

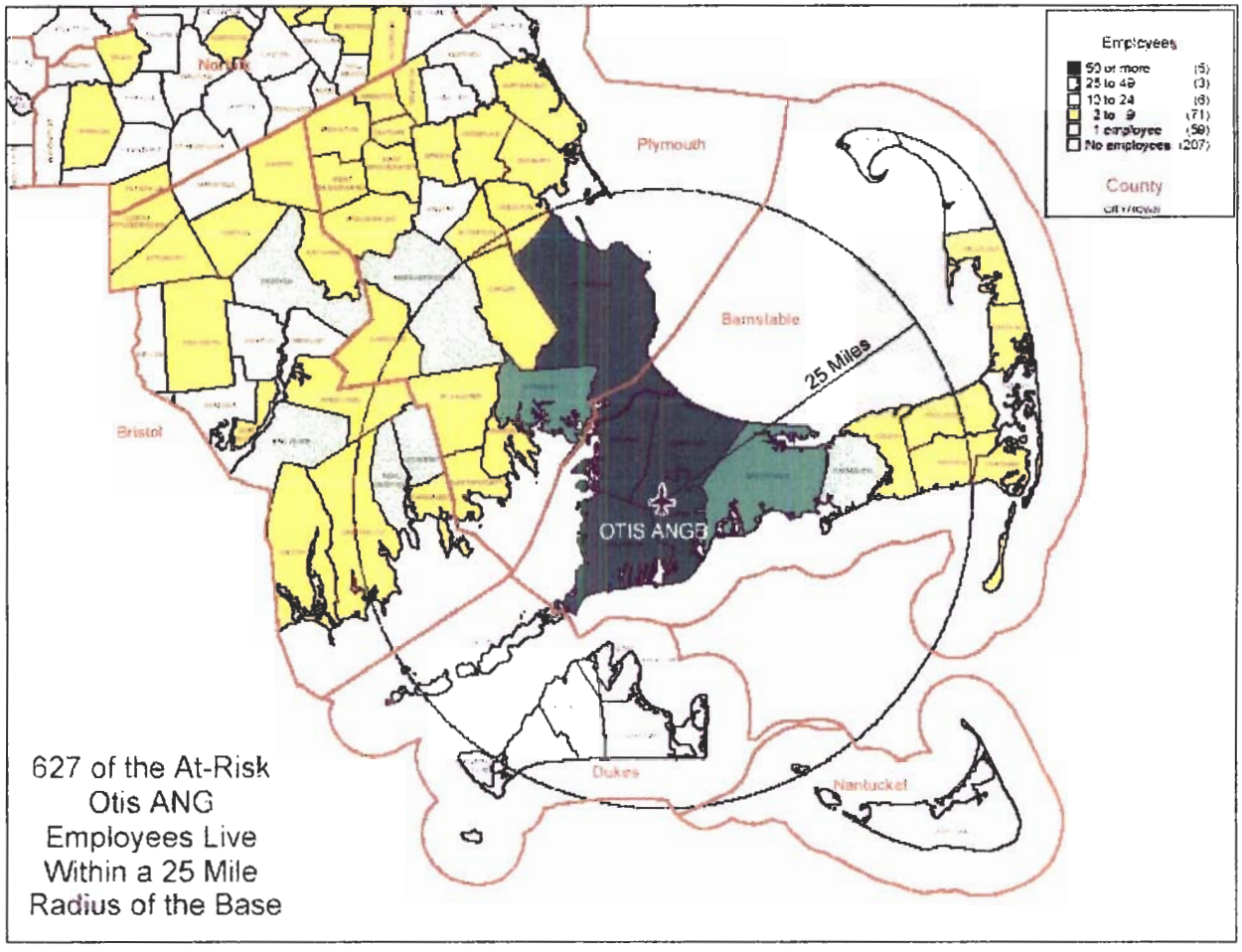
[1] This estimate is based on U.S. Census County Business Patterns for 2002, recording firms in Barnstable County by number of employees.
[2] Seasonal employment figures are based on D.U.A. 2004 employment in the towns of Bourne, Falmouth, Mashpee and Sandwich for the months of February and August.

Figure 1.



Source: UMass Donahue Institute

Figure 2.



Source: UMass Donahue Institute

Conclusion

In the context of the state and regional economy, the Otis ANG has a modest but notable economic impact on the state and southeastern Massachusetts. This is primarily due to Massachusetts' limited role in manufacturing the equipment and products purchased by the Otis ANG. However, the Otis ANG is a significant employer in Barnstable County. Full-time employment at the Otis ANG represents more than one percent of jobs in the adjacent communities of Falmouth, Bourne, Mashpee and Sandwich. In the absence of robust job growth on the state and regional level, the loss of full-time, benefited employment at the Otis ANG is meaningful.

Section II: Fiscal Impact of Base Closure

Introduction

The proposed closure of the Otis Air National Guard Base would have a clear impact on the ability of other tenants at the Massachusetts Military Reservation to fulfill their core missions. The 102nd Fighter Wing of the Massachusetts Air National Guard is the host tenant at the Massachusetts Military Reservation. In this host capacity, the Air National Guard provides basic services such as electricity, water and sewerage and fire protection throughout the MMR. In addition, the Air National Guard operates and maintains the air field utilized by the U.S. Coast Guard and Army National Guard. The Otis ANG is responsible for 100 percent of the costs of maintaining basic MMR infrastructure and for the operation and maintenance of the air field. In the absence of the 102nd Fighter Wing, MMR tenants will have to assume some of the costs and duties currently performed by the ANG. This section evaluates the fiscal and operational impacts of the proposed closure of the Otis Air National Guard Base on tenants at the MMR and adjacent municipalities.

The MMR and Base Operating Services

The 102nd Fighter Wing of the Massachusetts Air National Guard serves as the host tenant of over 25 organizations that share resources and facilities at the Massachusetts Military Reservation (for a full list of tenants, see Appendix C). The Otis Air National Guard (Otis ANG) provides basic services to all MMR tenants, including: electricity, water, sewerage, communications (lines), fire protection, and maintenance of most of the main roads on the MMR. MMR tenants reimburse the Otis ANG for the cost of utility consumption (electric, water, sewerage) on a metered basis; however, the Otis ANG pays for all of the cost of operating and maintaining the utility infrastructure. The Otis ANG pays the full cost of operating the Otis fire department.

The scale of the Otis ANG host tenant services operations at the Massachusetts Military Reservation is best appreciated through an understanding of the size of the MMR. At 34.4 square miles, the Massachusetts Military Reservation is equivalent in size to the largest Massachusetts towns. As shown in Table 2, the Otis ANG maintains 70 miles of electric utility lines, 2,068 utility poles and 610 transformers. The Otis ANG maintains 57 miles of sewage lines and operates a wastewater treatment facility. In addition, Otis ANG personnel maintain 27 miles of MMR roadways and staff a fire department with 57 firefighters and 11 vehicles. The host tenant services provided by the Otis ANG support every tenant at the MMR and would have to be maintained whether or not the air field continues to be operated.

Table 2: Summary of Host Tenant Infrastructure & Equipment

I. INFRASTRUCTURE AND MAINTENANCE	Unit of Measure	Miles
A. ELECTRICITY		
Electric Utility Lines Total (linear feet)	372,636	70.6
Utility Poles (EA)	2,068	
Transformers (EA)	610	
B. AIRFIELD LIGHTING (linear feet)	170,800	
C. ROADWAYS TOTAL (linear feet)	144,013	27.3
D. WASTE WATER TREATMENT PLANT		
E. SEWER TOTALS (linear feet)	303,204	57.4
F. WATER DISTRIBUTION TOTALS (linear feet)	520,027	98.5
G. ENGINEERING AND MAINTENANCE PERSONNEL	22 Persons	
II. FIRE PROTECTION	**Vehicles**	
A. FIRE FIGHTING VEHICLES	11	
B. EQUIPMENT		
Foam Trailer	1	
Haz-Mat Trailer	1	
Mule	1	
Tech Rescue Trailer	1	
Brush Breakers	2	
Portable Compressor (Breathing Air)	1	
C. FIRE DEPARTMENT PERSONNEL	57 persons	

Source: Civil Engineering Division, Otis ANG Base; prepared by the UMass Donahue Institute.

Air Field Operations

The Otis ANG operates and maintains the base's air field, including the F.A.A. tower, runways and all airport facilities.[3] The Army National Guard and U.S. Coast Guard depend upon the Otis ANG for support of all of their air operations. As shown on Table 3, the Army National Guard uses the air field to support training activities at the MMR for Guard units located throughout New England. The U.S. Coast Guard Air Station Cape Cod uses the air field to execute all of its airborne activities in the First District of the United States, from the Canadian border to northern New Jersey. Air Station Cape Cod enforces fisheries protection rules in New England and provides emergency rescue and safety services from the coastline to the off-shore fishing fleet at George's Bank.

Table 3: Air Field Uses by MMR Tenants (excluding 102nd Fighter Wing)

Branch	Type of Aircraft	Mission
U.S. Coast Guard	4 HH-60J Helicopters 4 HU-25 Falcon Jets	Search and Rescue Homeland Security Fisheries and Law Enforcement Aids to Navigation Support Counter-Narcotics Migrant Interdiction Maritime Tactical Vertical Delivery Training
MA Army National Guard	8 Blackhawk helicopters 1 C-26 turboprop	Training Guard Units from New England States

Sources: Army Air National Guard; U.S. Coast Guard, Otis Air Station

Base Operating Service Costs

The host tenant and air field operations provided by the Otis ANG are called Base Operating Services (BOS). The UMass Donahue Institute estimate of BOS costs was determined through the combined analysis of the Otis ANG, U.S. Coast Guard and the UMass Donahue Institute. The Otis ANG provided the U.S. Coast Guard with its analysis of BOS costs by service provided. The U.S. Coast Guard narrowed the set of BOS by excluding costs that it did not deem essential to supporting MMR infrastructure or the air field. Excluded costs include services such as the Precision Measurement Equipment Laboratory (PMEL) which calibrates sensitive electronic equipment and Explosive Ordnance Disposal (EOD).[4] The UMass Donahue Institute worked with the Otis ANG to further refine the BOS cost estimate by developing a detailed accounting of BOS expenses. The final figure presents the best estimate of Base Operating Services available without the development of base closure scenarios that are beyond the scope of this analysis.

Out of a total budget in FY 2005 of $137.9 million, the Otis Air National Guard estimates that it is spending $18.6 million on annual Base Operating Services. The UMass Donahue Institute baseline estimate of BOS (leave behind costs) is $15.8 million, which includes a net increase for the remaining MMR tenants of 129 FTE personnel. The UMass Donahue Institute estimate of BOS costs does not include the cost of capital projects that are subject to appropriation and vary from year to year (F.A.A. tower reconstruction, runaway resurfacing, and lighting). The UMass Donahue Institute estimate of BOS is summarized in a table on the following page.

[3] The Army National Guard and the U.S. Coast Guard operate separate facilities to maintain their aircraft and have taxiways linked to the air field. The Air National Guard funds and operates the air field.

[4] The ANG makes the case that PMEL and EOD services will have to be assumed by another base and are thus not pure savings as presented by the BRAC. This report does not evaluate that claim.

Estimated Annual Base Operating Costs (Leave Behind Costs)

If the Otis ANG base is closed, it would leave behind an estimated $15.8 million in annual costs for the remaining tenants of the MMR. Approximately two-thirds of these leave-behind costs would be associated with the personnel required to maintain the infrastructure and operate the air field. The Otis ANG currently employs 165 FTE personnel to perform base operating services. The U.S. Coast Guard estimates that it would need 129 full-time equivalents to maintain base operations. The Facility Engineering Costs in Table 4 include the cost of maintaining the electric utility infrastructure on the MMR, the roads and grounds, wastewater treatment plant and full system of sewage lines and water mains. Transportation includes the full cost of supporting the fleet of vehicles required to maintain the MMR. Air field operations include the cost of managing the air field, paying the costs of the F.A.A. and maintaining the emergency generation and power supply to the air field.

The Otis ANG estimates that a minimum of $10.3 million in capital expenditures are required in the immediate future. The urgent capital expenditures include: $1.3 million in approach lighting, $2 million in taxiway slab repairs and $7 million for a new F.A.A. control tower. The capital expenditures are not included in the $15.8 million estimate of annual base operating costs.

Table 4: Base Operating Costs at the Massachusetts Military Reservation, FY 2005

Department/Cost	Personnel	Personnel Cost	Supplies, Equipment & Other Costs	Total ($K)
A. Facility Engineer Costs				
Electrical	11	$810,128	$54,000	$864,128
Roads & Grounds	10	$579,110	$137,000	$716,110
Fire Department	49	$3,712,240	$85,000	$3,797,240
Water and Wastewater Treatment Plants	5	$383,855	$28,000	$411,855
Other Engineering	19	$1,263,129	$248,000	$1,511,129
B. Utility Costs	N/A		$785,000	$785,000
C. Civil Engineering Costs	6	$570,780	$68,000	$638,780
D. Transportion	7	$444,668	$133,000	$577,668
E. Security	N/A		$250,000	$250,000
F. Air Field Operations	4	$989,200		$989,200
G. Support / Misc	18	$1,148,724	$28,000	$1,176,724
H. Annual Civil Engineering Maintenance	N/A		$4,078,000	$4,078,000
I. Acquisition, Construction and Improvements			**NOT INCLUDED**	
Total	**129**	**$9,901,834**	**$5,866,028**	**$15,795,834**

Sources: U.S. Coast Guard Air Station Cape Cod; 102nd Fighter Wing, Otis ANG; UMass Donahue Institute.

Impact on Municipalities

The communities directly adjacent to the Massachusetts Military Reservation have historic connections to the installation. Municipal officials interviewed for this report expressed pride in the work of the 102nd Fighter Wing and noted that the families and staff people associated with the MMR add to the diversity and vitality of their communities. The MMR has a positive presence within the region and the Towns of Bourne, Mashpee, Sandwich and Falmouth have an active presence at the MMR. The towns have cooperative agreements with the MMR to provide mutual aid for fire protection and emergency services. The MMR is home to the four-town Integrated Solid Waste Management Facility, which transfers the waste from the MMR and four towns to an off-Cape incinerator plant. The Town of Bourne operates a public school (Otis Memorial) on the MMR and the Cape Cod Collaborative provides educational services to children with special needs from throughout Barnstable County. In addition, the recently constructed Barnstable County Sheriff's Office is located on the MMR.

Municipal officials from throughout the four towns note that the impact of the Otis ANG on local communities is far deeper than the provision of host tenants services that benefit facilities located on the MMR. The adjacent communities expressed strong support for the flying mission of the 102nd Fighter Wing and, in the context of the events of September 11, 2001, express comfort and pride from knowing that the Otis ANG secures the air space over New England. Municipal and school officials noted that communication and cooperation with the Otis ANG is at a high level in the history of the MMR. The MMR was designated a Superfund site in 1989 and the Cape Cod communities have had a long and contentious debate about the effect of reservation activities on the region's sole-source aquifer. All officials and local residents interviewed for this report expressed great satisfaction with the clean-up effort to-date and the ongoing efforts to monitor water quality on the MMR. In short, there is no evidence of local dissatisfaction with the 102nd Fighter Wing and strong anecdotal evidence to the contrary showing support for the Otis ANG and the MMR generally.

Fiscal Impact on Municipalities

The analysis in Section I showed the economic impact of the Otis ANG in Barnstable County. This section provides a preliminary assessment of the known fiscal impacts the potential Otis ANG base closure. The closure of the Otis ANG would likely have a modest direct fiscal impact on adjacent municipalities and Barnstable County facilities on the MMR. The municipal and county facilities located on the MMR would have to work with other MMR tenants to resolve the operation and finance of host tenant services. Most of those services – roadway clearance, sewer and water maintenance – are beyond the scope of any one municipal tenant to support. However, the municipal tenants also do not constitute a large proportion of MMR activities (by share of land or number of employees). In fact, the Bourne Public Schools is currently planning to vacate its facility on the MMR in fall of 2007. The Otis Memorial Elementary School will be closed in favor of a new school building under construction off of the MMR. The Otis Fire Department of the Otis ANG does provide mutual aid to adjacent communities, including use of specialized equipment that, according to interviews with local officials, would be prohibitively expensive for local fire departments to replace. However, a precise estimate of likely increased costs to adjacent fire departments was beyond the scope of this analysis.

The main impact facing the municipalities is uncertainty. The first uncertainty is the manner and means of resolving the provision of host tenant services if the Otis ANG base is closed. At present, the total cost and organizational structure required to provide basic services at the MMR is entirely unknown. Therefore, it is impossible to responsibly analyze or apportion the costs that would be borne by Barnstable County or adjacent municipalities. The second uncertainty is the effect of the potential withdrawal of mutual aid and specialized fire suppression equipment by the Otis Fire Department. The third uncertainty is how the closure of the Otis ANG would affect the maintenance and operation of the wastewater treatment facility. According to municipal officials, the Otis ANG and the adjacent towns have long-term plans that allow the municipalities to utilize the excess capacity of the plant if and when their own facilities prove inadequate. The towns have a long-term interest in ensuring the proper maintenance and operation of the plant.

A fourth uncertainty is the cost of obtaining electricity on the MMR in the event that the Otis ANG base closes. At present the Otis ANG finances 100 percent of the cost of maintaining and operating the utility infrastructure on the MMR. The Otis ANG receives a wholesale rate for electricity from NStar which it passes on to MMR tenants. For this report, the UMass Donahue Institute interviewed officials from the Otis ANG, NStar and the Massachusetts Department of Telecommunications and Energy to determine the most likely process for replacing the services of the Otis ANG. At a minimum, MMR tenants would face a 5 percent increase in the cost of electricity. In addition, any and all costs for managing and maintaining the utility infrastructure would be passed along to MMR tenants. Given the short time-frame of this project and the complexity of base infrastructure, a detailed analysis of utility costs was not possible.

Conclusion

The Massachusetts Military Reservation is the geographic size of a medium-to-large Massachusetts town. To function, the host tenant services provided by the Otis ANG will have to be replaced if the base is closed. In addition, U.S. Coast Guard Air Station Cape Cod and the Massachusetts Army National Guard rely on the Otis ANG to manage and maintain the air field. Both service branches must have access to the air field to execute their missions at the MMR. The total cost of providing Base Operating Services at the MMR, exclusive of capital costs, is estimated to be $15.8 million.

Section III: Impact on U.S. Coast Guard & Coastal Communities

The proposed closure of the Otis Air National Guard (Otis ANG) Base presents fiscal and operational challenges to the remaining tenants of the Massachusetts Military Reservation (MMR). Air Station Cape Cod, the sole U.S. Coast Guard air station in the northeast, would be acutely affected by the closure of the Otis ANG. Air Station Cape Cod serves two distinct but related missions: air operations from the Canadian border to northern New Jersey; and, housing and other supportive services for Coast Guard Stations throughout Massachusetts and Rhode Island. As discussed in Section II, the annual cost of assuming responsibility for the air field and host tenants services would be a minimum of $15.8 million excluding capital projects. The current Coast Guard budget at Air Station Cape Cod is $5 million. According to Coast Guard staff, Air Station Cape Cod would be severely challenged to assume the full cost of operating the air field and MMR infrastructure. No other Coast Guard air station in the United States operates and maintains its air field.

This section provides an overview of the mission of Air Station Cape Cod and the station's relationship to the fishing industry and coastal communities. It is beyond the scope of this analysis to present base closure scenarios or predict impacts on the Coast Guard and coastal communities. The purpose of the section is to inform decision-makers of the fit between the safety and other needs of the maritime community and the current location and operations of Air Station Cape Cod.

Summary of Activities

U.S. Coast Guard Air Station Cape Cod uses the A.N.G. Base airfield to carry out a range of duties in a region extending from northern New Jersey to the Canadian border to 275 nautical miles offshore. Air Station Cape Cod is the only Coast Guard Air Unit in the northeast, with missions including: search and rescue; homeland security; fisheries and law enforcement; aids to navigation support; counter-narcotics; migrant interdiction; maritime tactical vertical delivery training. Air Station Cape Cod uses the Otis air field to operate its 4 HH-60J Helicopters and 4 HU-25 Falcon Jets. In addition to its air duties the U.S. Coast Guard manages 545 housing units at the MMR, with a medical clinic, exchange store and community facilities to serve Coast Guard and military personnel throughout eastern Massachusetts and Rhode Island.

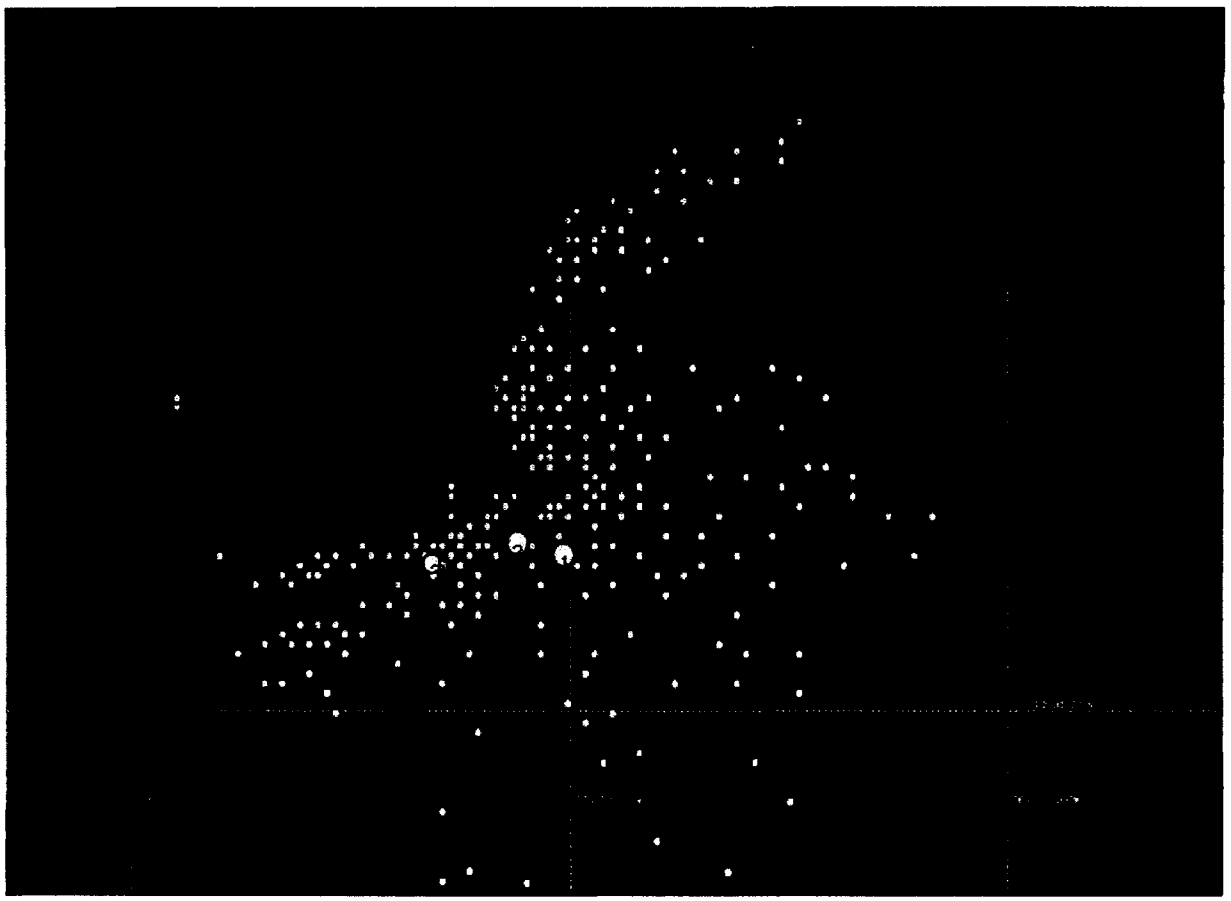
Importance to Commercial Fishing Industry in the Region

The U.S. Coast Guard often notes that it is currently located at the geographic center of its area of responsibility, the First District of the United States. It claims that if the air station moved north or south of its current location, it would have difficulty serving communities at the far end of the First District within its maximum response time of two hours. As shown in Figure 3, Air Station Cape Cod is at the geographic center of the most intense commercial fishing activity in the First District. Figure 3, prepared by the Northeast Fisheries Science Center, shows satellite tracked fishing activity in the northeast during October 2003. Due to its current location, Air Station Cape Cod can rapidly respond to the majority of the fishing boats in its service area. Figure 4, prepared by Coast Guard Air Station Cape Cod, shows the air search and rescue responses from May 2004 to May 2005. Figure 4 demonstrates that the area of greatest demand for air station services overlaps the area of most intense fishing and boating activity in the First District. Without minimizing the importance of serving commercial and recreational boaters north of Cape Ann or south of Block Island, it is clear that Air Station Cape Cod is well-situated to efficiently execute its mission.

Figure 3: Satellite Tracked Fishing Activity in the Northeast, October 2003

Source: Northeast Fisheries Science Center, Woods Hole

Figure 4: U.S. Coast Guard Search and Rescue Responses from Air Station Cape Cod, May 2004 to May 2005



Source: Air Station Cape Cod, U.S. Coast Guard

Commercial Fishing and Safety

Search and rescue (SAR) responses are the most critical services provided for the fishing industry.[5] Commercial fishing remains one of the most dangerous occupations in Massachusetts[6] and helicopter rescue is often the only practical means of responding to off-shore emergencies. Air Station Cape Cod responds to a search and rescue caseload of at least 225 incidents per year, with an annual average of 50 med-evacs. SAR responses have reached an annual peak of 318 cases per year, in the years reported from FY 1996 to FY 2004.[7] Other critical services provided by the Air Station include enforcement of fisheries management plans designed to restore historic fishing grounds such as Georges Bank and enforce marine protection rules (for whales, for instance).[8]

The Fishing Industry in Massachusetts

The area most immediately accessible from the Air Station - the Massachusetts coastline itself – remains one of the most important centers of commercial fishing activity in the United States. New Bedford is home to the number one port in the United States as measured by total dollar value of catch. The Port of Gloucester ranks 13th in the nation and Sandwich has the third largest lobster catch after Portland, ME and Gloucester.[9]
More than 1,700 active commercial fishermen and 1,504 commercial lobstermen work in Massachusetts.[10] A 1999 study estimated that 4,100 commercial fishermen were working full time, and another 5,000 to 7,000 people were working as part-time commercial fishermen.[11] The same study showed that average incomes to fishermen in the state in 1999 varied by port, including, wages of $36,000 in New Bedford, $32,000 in Gloucester, and $18,000 in other ports.

The Massachusetts fishing industry is an economically powerful, providing direct as well as secondary benefits to the state economy. Commercial fish landings at the state's major ports in 2003 were valued at upwards of $236.5 million.[12] In 2003, commercial lobster fishing garnered commercial values of $49 million.[13] The commercial fishing industry supports an extensive network of shore side suppliers for everything from supplies, equipment purchases and repairs, and financial services. The industry is a critical supplier to regional wholesalers, retailers and restaurants as well as to fish processing plants throughout the region.

Coast Communities and Air Station Cape Cod

Air Station Cape Cod provides "a lifeline"[14] for island communities throughout the northeast. Martha's Vineyard and Nantucket, the two most-populous island communities in the northeast, rely on Air Station Cape Cod to provide air ambulance services to critically-ill patients at Nantucket Cottage Hospital and Martha's Vineyard Hospital. The hospitals rely on commercial med-evac services during clear weather. During inclement weather, commercial services will not fly to the islands and Air Station Cape Cod is the sole provider of emergency transportation services to the islands. The Coast Guard averages 50 med-evacs per year. In addition, Nantucket, Martha's Vineyard and Block Island rely on Air Station Cape Cod to respond to natural disasters and other emergencies related to its mission of homeland security. The Massachusetts Military Reservation is an optimal location from which to respond to these densely-populated island communities.

[5] Interviews with fishing industry representatives, June, 2005.
[6] Massachusetts Coalition for Occupational Safety and Health and the U.S. Bureau of Labor Statistics.
[7] U.S. Coast Guard Air Station Cape Cod document.
[8] Interviews with fishing industry representatives, June, 2005.
[9] Robert Gavin. *Fishing's revival stirs waterfront debate: New Bedford prospers, at a price.* Boston Globe. Boston, Massachusetts. April 3, 2005.
[10] Massachusetts Division of Unemployment Assistance, *ES-202 series, Annual 2003;* and Massachusetts Lobstermen's Association, Inc. *The Massachusetts Lobster Industry – Its Fishermen, Markets and Support Industries.*
[11] Daniel Georgianna. *The Massachusetts Fishing Industry: Proud Past, Uncertain Future.* Massachusetts Benchmarks. Summer 1999, Volume 2, Issue 3.
[12] NOAA Fisheries website. *Total Commercial Fishery Landings At Major U. S. Ports Summarized By Year And Ranked By Dollar Value.* http://www.st.nmfs.gov/pls/webpls/MF_LPORT_YEARD.RESULTS
[13] Massachusetts Lobstermen's Association, Inc. *Preliminary: selected landings (lbs) and effort statistics, 1999 – 2003.*
[14] Conversation with Chuck Gifford, Community Relations Director, Nantucket Cottage Hospital, June 22, 2005.

Conclusion

This analysis shows that Air Station Cape Cod is optimally located to serve its mission of protecting Massachusetts' workers, industries and communities. No one associated with Air Station Cape Cod suggests that the level of service currently provided to coastal communities and fishermen in the First District will fall below Coast Guard standards if the Otis Air National Guard Base is closed. The challenge for the Commonwealth of Massachusetts is to ensure that the proposed closure of the Otis ANG does not negatively impact a range of Coast Guard services that support island and coastal communities, the tourism and recreational boating industry, and the fishing industry.

Appendix A: Background

For nearly seven decades, the Otis Air National Guard Base (Otis ANG) has filled key defense and security needs for the nation while providing important social and economic support to Massachusetts in general and to the Cape Cod region and communities around it. This background section provides a brief overview of the history of and operations at the Massachusetts Military Reservation, including the Massachusetts Air National Guard and the U.S. Coast Guard Air Station Cape Cod, which depends upon Otis ANG for financial and operational support.

Massachusetts Military Reservation (MMR)

MMR covers about 22,000 acres, or approximately 30 square miles, on the upper western portion of Cape Cod, including parts of the towns of Bourne, Mashpee and Sandwich and abutting the town of Falmouth. Occupying the southern part of the reservation are facilities for the U.S. Coast Guard, Army National Guard and Otis ANG, including runways, maintenance areas, access roads, housing and support facilities. The northern 14,700-acre section of MMR is used primarily by the Army National Guard for training exercises. The 750-acre Veterans Administration Cemetery sits on the southwestern corner of the reservation. The Barnstable County sheriff's office is also located on MMR, as is a solid waste transfer station jointly owned and operated by the towns of Bourne, Falmouth, Mashpee and Sandwich. The MMR is located above Cape Cod's sole source aquifer for its drinking water supply. In 1989, MMR was placed on the EPA Superfund list due to the presence of contaminants that threatened the integrity of Cape Cod's drinking water. Millions of dollars have been spent to clean-up and monitor the quality of the water supply under MMR. The Air Force Center for Environmental Excellence located on MMR has the responsibility to ensure the continuation of the clean-up effort.

MMR was established by the Commonwealth in 1935 as a National Guard training camp. In 1938, the landing field area at Camp Edwards was named Otis Field in memory of a Boston flight surgeon and pilot who died while on a training mission. MMR was leased to the federal government in 1940 in preparation for World War II. From 1955 through 1972, the U.S. Air Force operated Otis Air Force Base on MMR, which until 1973 was the largest Aerospace Defense Command base in the world. In 1977, Otis AFB was divided into several installations: the Otis Air National Guard Base, Camp Edwards and the U.S. Coast Guard Air Station Cape Cod.

MMR is the largest training field for the Army in all of New England, training Guard units throughout the northeast on the upper portion of the reservation, most of which is open space reserved for live fire exercises. The Army National Guard has eight Blackhawk helicopters and one C-26 aircraft, all of which use the airfield operated by Otis ANG's 102nd Fighter Wing. The Army National Guard relies upon the Air National Guard for basic services, such as maintenance of roads, utilities, water and sewage.

102nd Fighter Wing

Headquartered at Otis Air National Guard Base on Cape Cod, the 102nd Fighter Wing of the Massachusetts Air National Guard utilizes F-15 fighter aircraft that are on continuous, 24-hour daily mission to help protect the northeast United States from armed attack by other nations or terrorists and to defend against other activities, such as smuggling, illicit drug activity and illegal immigration. The wing is also immediately deployable to support U.S. Air Force requirements elsewhere in the nation or world. Otis ANG pilots are either full-time military or civilian professional pilots.

As the only active air defense base on the east coast between the Canadian border and the nation's capital, Otis ANG plays a lead role in homeland defense. Otis F-15s were the first to respond to the September 11 terrorist attacks on New York City.

As host tenant, Otis ANG provides basic services to other base tenants at little or no charge. It maintains important infrastructure, including roads, water lines, sewage treatment facility, electrical cables and communications lines, including utility poles. It also operates the air field utilized by the U.S. Coast Guard for air operations in the northeast. While it is not the focus of this report, military and other experts have noted Otis ANG's strategic importance to homeland security and defense. Closure of Otis ANG Base could also jeopardize continued operation of the U.S. Coast Guard Air Station Cape Cod since the operational costs and maintenance of that facility are currently covered by Otis ANG, which also pays for Federal Aviation Administration operations in the air base's control tower.

U.S. Coast Guard Air Station Cape Cod

The core of the Coast Guard operations on MMR is Air Station Cape Cod, which provides all air operations for the First District of the United States, an area running from the Canadian border to northern New Jersey. The station is responsible for search and rescue operations along the coast and out to George's Bank. The U.S.C.G. conducts regular patrols to enforce fisheries regulations and environmental laws. It also serves to enforce maritime laws, including interdiction activities.

The USCG owns and manages 545 housing units for Coast Guard personnel and their families, as well as unaccompanied Coast Guard employees and personnel from the 102nd Fighter Wing of the Massachusetts Air National Guard. The housing office also manages Coast Guard housing programs for Rhode Island, southeastern Massachusetts and the Cape and Islands. The Coast Guard also operates various Morale, Welfare and Recreation (MWR) facilities for active duty military personnel from all U.S. military branches, as well as reservists and retirees throughout Cape Cod and southeastern Massachusetts. The Coast Guard operates a medical clinic (Kaehler Memorial Medical Clinic), golf course, theater, recreational club, gas station and a supermarket and department store.

Appendix B: Methodology & Data Sources

Methodology: The IMPLAN Modeling System

The indirect and induced economic impacts of the Otis Air National Guard Base of the 102nd Fighter Wing (Otis ANG) was specified using IMPLAN (IMpact Analysis for PLANing), which is an econometric modeling system developed by applied economists at the University of Minnesota and the U.S. Forest Service. The IMPLAN modeling system has been in use since 1979 and is currently used by over 500 private consulting firms, university research centers, and government agencies. The UMass Donahue Institute has used IMPLAN in various economic and fiscal impact analyses.

The IMPLAN modeling system combines the U.S. Bureau of Economic Analysis' Input-Output Benchmarks with other data to construct quantitative models of trade flow relationships between businesses and between businesses and final consumers. From this data, one can examine the effects of a change in one or several economic activities to predict its effect on a specific state, regional, or local economy (impact analysis). The IMPLAN input-output accounts capture all monetary market transactions for consumption in a given time period. The IMPLAN input-output accounts are based on industry survey data collected periodically by the U.S. Bureau of Economic Analysis and follow a balanced account format recommended by the United Nations.

IMPLAN also includes social accounting data (e.g., personal income and gross state product) that makes it possible to measure non-industrial transactions such as the payment of indirect taxes by businesses and households. The IMPLAN database provides data coverage for the entire United States by county and has the ability to incorporate user-supplied data at each stage of the model building process to insure that estimates of economic impacts are both up-to-date and specific to an economic impact area.[15] IMPLAN can construct local input-output models in units as small as five-zip code clusters.

IMPLAN's Regional Economic Accounts and the Social Accounting Matrices are used to construct local, county, or state-level multipliers specific to an impact area. Multipliers describe the response of an economy to a change in demand or production. The multipliers allow economic impact analysis to move from a descriptive input-outputs model to a predictive model. Each industry that produces goods or services generates demand for other goods and services and this demand is multiplied through a particular economy until it dissipates through "leakage" to economies outside the specified area. Thus, multipliers calculate the response of the economic impact area to a change in demand or production.

IMPLAN models discern and calculate leakage from local, regional, and state economic areas based on workforce configuration, the inputs required by specific types of businesses, and the availability of both inputs in the economic area. Consequently, economic impacts that accrue to other regions or states as a consequence of a change in demand are not counted as impacts within the economic area. The model accounts for substitution and displacement effects by deflating industry-specific multipliers to levels well below those recommended by the U.S. Bureau of Economic Analysis. In addition, multipliers are applied only to personal disposable income to obtain a more realistic estimate of the multiplier effects from increased demand. The reliability of these estimates has been proven through empirical testing (Department of Commerce 1981; Brucker et al 1990).

[15] The IMPLAN modeling system draws on a variety of statistical sources, including the Bureau of Labor Statistics Growth Model, Bureau of the Census, ES-202 employment and earnings data, the Regional Economic Information System (REIS), and the Bureau of Economic Analysis Gross State Product data.

A predictive model is constructed by specifying a series of new expenditures in a specific economic area (e.g., new employment or construction), which is then applied to the industry multipliers for that particular region. Based on these calculations, the model estimates final demand, which includes employment, employee compensation (excluding benefits), and point-of-work personal income (including benefits). The initial IMPlan data details all purchases in a given area, including imported goods and services. Importantly, IMPLAN's Regional Economic Accounts exclude imports to an economic area so the calculation of economic impacts identifies only those impacts specific to the economic impact area. IMPLAN calculates this distinction by applying Regional Purchase Coefficients (RPC) to predict regional purchases based on an economic area's particular characteristics. The Regional Purchase Coefficient represents the proportion of goods and services that will be purchased regionally under normal circumstances, based on the area's economic characteristics described in terms of actual trade flows within the area.

The UMass Donahue Institute built input-output models using the IMPlan Professional 2.0 model building software and data packages. The data used in the model are for 2002, which is the latest available. Model outputs are reported in 2004 dollars.

It is possible to estimate the economic impacts operations and capital expenditures by the Otis ANG simply by changing the output of the industry in the econometric model. This method assumes that the facilities' production functions are the same as the average of the various industry sectors in the state where they operate directly or through contractors. However, because specific data on Otis' operations and contracting was available, it was possible to use a more precise method for estimating its economic impacts. Instead of specifying a change in output for a single industry (e.g., federal military), we instead specify a long list of changes in the output of each industry that is a beneficiary of Otis' procurement and services contracts, which allows IMPlan to apply the appropriate regional purchase coefficient to each industry. Thus, what is specified as direct impacts in the model are actually the first round of indirect impacts. What is reported as indirect impacts in the analysis are what the model reports as direct and indirect impacts.

The UMass Donahue Institute also separately specifies the first round of induced impacts. The model first applies the ratio of personal consumption expenditures to employee compensation for the state to the facilities' employee compensation and that of their contractors to account for taxes and savings. The remaining disposable income is then distributed among IMPlan's 528 industrial sectors using the model's breakdown of personal consumption expenditures for medium- and high-income households, while also applying the appropriate regional purchase coefficient to each industry. What the Institute specifies as direct impacts in the model are actually the first round of induced impacts so what is reported as induced impacts in the analysis are the total impacts from the model plus the induced impacts from the model of inter-industry expenditures by the Otis ANG.

Data Sources

Economic impacts are often calculated separately for the operations phase and construction phase of an establishment. The operations phase of an establishment generates economic impacts that continue as long as the facility remains in existence. The economic impacts of construction and other capital expenditures are necessarily limited and temporary in duration and last only so long as construction and related capital purchases are underway. However, because the Otis ANG is a mature facility with on-going maintenance, construction, and building repair operations, these expenditures were included as part of the facilities' annual operations.

Payroll Expenditures

The Otis ANG provided the UMass Donahue Institute with their total payroll expenditures by employee type, which allowed the assignment of actual expenditure amounts to National Guard personnel and permanent, full-time base personnel for purposes of calculating induced impacts. Otis also provided the location of each employee by type and zip code, which allowed the Institute to assign each employee to a county, allowing a detailed county-by-county analysis of the effects of payroll spending. To calculate the amount of payroll going to

each county, the Institute calculated an average payroll by employee type and multiplied that by the total number of employees in each county by type (guard or other).

Fringe Payments for Employees

While much of the money paid for fringe benefits for employees would not have a direct effect on the economy of Massachusetts, a certain portion of that fringe is spent on medical care for the employees and their families, an expenditure that would have an economic impact. After reviewing other, similar studies, the Institute found that approximately 35 to 37 percent of fringe benefit payments were usually spent on employee heath benefits. The Institute chose the midpoint of 36 percent of fringe payments as an adequate approximation of health expenditure from fringe benefits, and apportioned that amount equally between the *Offices of physicians, dentists, and other health practitioners* (IMPLAN industry 465) and *Hospitals* (IMPLAN industry 467). The resulting economic impact of this spending was included in the final totals.

Taxes and Savings

The IMPLAN model does not take taxes and savings into account when the effects of household spending are calculated. Therefore, the UMass Donahue Institute calculated out the amount of payroll that would be expected to go towards paying local, state, and federal taxes, as well as money that would be expected to flow into savings accounts. As the actual amount of taxes paid by Otis employees was not available, the Institute used average Massachusetts tax burden data for 2004 obtained from the Tax Foundation, a non-profit organization that tracks tax payment data by state. In 2004, the average state and local tax burden for Massachusetts' residents was 9.9 percent of income, while the average Federal tax burden was 20.5 percent, for a total of 30.4 percent of income. In addition, one percent of spending was subtracted for savings, as data from the Bureau of Economic Analysis (BEA) for 2004 suggested that this was the average national savings rate for that year. The remaining 68.6 percent of payroll was used in the IMPLAN model as household spending.

However, just as a certain portion of fringe benefits stays in Massachusetts and has an effect on the economy, state and local taxes also stay in Massachusetts and have their own effect. The Institute took the 9.9 percent of payroll spent on state and local taxes and calculated the impact of that spending on Massachusetts and the various counties. To properly apportion the tax payments between education and non-education spending, the Institute calculated that the state average payment of all state and local expenditures for education in 2004. This value, 19.67 percent of all combined state and local spending, was used to apportion the tax payments between Implan sectors 503 (*State and Local Education*) and 504 (*State and Local Non-Education*). The resulting impacts of this spending were included in the final totals.

Regional Purchases

In addition to the direct payroll expenditures for on-base operations, the Otis ANG makes both contracts with and purchases from private companies for a variety of products and services. Contract expenditures for 2004 by Otis were obtained from the air base staff. The list of contracts identifies the company receiving a contract award, the name and address of the contract recipient, the amount of the award, and the purpose of the contract by NAICS code. Only contracts with vendors located in Massachusetts were allocated to industry sectors for purposes of calculating economic impacts on the state, and each of these contracts was also located by county for the county impact analysis. Purchases from vendors outside the statewide impact area were excluded from the calculation of economic impacts.[16]

[16] An inherent weakness of a single-region input-output model, such as IMPlan, is that it cannot capture the feedback effects that result when purchases from a supplier outside the region leads to additional purchases within the region by that supplier or suppliers. For example, Otis ANG might purchase computers (office equipment) from Dell Computer in Austin, Texas, which would then purchase semiconductors from Intel Massachusetts. It is possible to construct a multi-region input-output model to capture feedback effects, but such a model requires a great deal of data collection and is not supported by the IMPlan software.

The same procedure was followed for purchases made by the base from various retail outlets and companies, but the various IMPLAN industry sector codes were hand-coded by the Institute prior to analyzing the data as the purchase information did not contain NAICS codes. As with the contract information, purchases from organizations outside of Massachusetts were not included in the analysis.

Trade and Freight Margins

When the Otis ANG purchases goods or services, the expenditures cover at least the price of the goods or services, but it may also include the cost of shipping, insurance, wholesale margin, retail margin, and brokerage fees. IMPlan provides sector-specific margins to account for these "exported" expenditures, which are subtracted from the regional impact.

Assignment to IMPLAN Industry Sectors

The allocation of expenditures among IMPlan's 528 industry sectors was conducted by the UMass Donahue Institute. The IMPlan User's Manual includes a detailed data sectoring scheme that identifies the equivalent NAICS Codes for each of the model's 528 industry sectors. Since the Otis ANG's procurement data identifies purchases by NAICS Code, it was possible to model the indirect and induced impacts of the base's contracted purchases with a high degree of detail. Also, due to the level of detail included in the purchasing data, the Institute was able to derive the industry sector from the information provided for each individual purchase in Massachusetts.

Appendix C: Supplemental Data

Massachusetts Military Reservation Tenants

- Massachusetts Army National Guard Training Site
- Massachusetts Environmental & Readiness Center
- Veterans Administration National Cemetery
- U.S. Army Environmental Center Impact Area Groundwater Study Program
- 253rd Combat Communications Group
- 267th Combat Communications Squadron
- U.S. Coast Guard Air Station Cape Cod
    - Exchange/Commissary
    - Golf Course
    - MWR
    - Family Housing
    - Storage for ships in Boston
- U.S. Air Force 6th Space Warning Squadron PAVE PAWS
- Air Force Center for Environmental Excellence / Installation Restoration Massachusetts Army National Guard Army Air Facility #1
- Massachusetts Army National Guard Regional Training Institute
- U.S. Department of Agriculture
- Environmental Management Commission
- Senior Environmental Corps
- Barnstable County Sheriff's Office / Correctional Facility
- Massachusetts Disaster Preparedness Safe Haven Facility
- U.S. Air Force Auxiliary (Civil Air Patrol)
- Massachusetts Maritime Academy (classrooms)
- Federal Aviation Administration, North Atlantic Region
- Bourne School System
- Coast Guard Communications Station, Boston
- Coast Guard Electronic Systems Support Detachment
- Coast Guard Marine Safety Field Office
- Coast Guard Northern Regional Fisheries Training Center
- Coast Guard LANT Area Armory
- Coast Guard Port Security Unit
- Motorcycle & canine training areas for state and local police
- Northeast Regional Fisheries Training Center (Coast Guard)
- Upper Cape Trash Transfer Station / Bay Colony Railroad
- U.S. Geological Survey
- Volpe Test Center
- Buzzards Bay Project
- FAA Cape Approach

Massachusetts Military Reservation Services Provided by Otis Air National Guard

Environmental Support
- Joint Land Use Study
- AICUZ Study
- Tenant Recycling
- Public Water Supply Monitoring
- Natural and Cultural Resource Mgt
- Clean Water Act & Safe Drinking Water Act Compliance Permitting
- Waste Water Treatment Plant Analytical Monitoring
- Grassland Restoration

Emergency Services Owner Operator
- 911 Call Center
- Aircraft Fire Fighting
- Structural Fire Fighting
- Explosive Ordnance Disposal
- Confined Space Rescue
- Space Shuttle Support
- Local/Regional Mutual Aid
- Alarm System Owner
- Fire Suppression Systems
- HazMat Spill Response
- Emergency Standby Ops
- Extensive Wildland Fire Management
- Emergency Medical Services
- Technical Rescue
- Water Rescue
- Joint Readiness Training

Utility Owner Operator
- High Voltage Electrical
- Waste Water Management
- Public Water Supplier
- Storm water Management
- Communications Infrastructure

Airfield Owner Operator
- Air Traffic Control
- Re-Fueling Services
- Airfield Management
- Airfield Repair/Maintenance
- Snow Removal
- Training
- Emergency Divert
- Weather Services

Key Informant Interviews

The following individuals provided information and assistance for the project:

Barnstable County Sheriff's Office
Dave Neal

Cape Cod Canal Chamber of Commerce
Marie Oliva, Executive Director

Commonwealth of Massachusetts, Dept. of Telecommunications & Energy
Tim Shevlin, Executive Director

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Sean D. Reilly, Maj, 102FW/FM, 4228
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Massachusetts Army National Guard
Lt. Col. Thomas Devine, Comptroller

Massachusetts Fishermen's Partnership
Ron Borjeson, Board Member

Massachusetts Lobsterman's Association
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Nantucket Cottage Hospital
Chuck Gifford, Community Relations and Development

NSTAR Electric
Pam Pandolfi, Account Executive

Town of Bourne, Massachusetts
Brent Goins, Head of Waste Transfer
Thomas Guerino, Town Administrator
Edmond Lefleur, Superintendent of Schools

Town of Sandwich, Massachusetts
George H. "Bud" Dunham, Town Administrator
Greg Fayne, Harbormaster

US Coast Guard Air Station Cape Cod
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