DCN: 6098

DEPARTMENT OF THE AIR FORCE

WASHINGTON, DC 20330-1000

OFFICE OF THE ASSISTANT SECRETARY

OCT 4 2004

MEMORANDUM FOR RECORD

SUBJECT: Minutes of Air Force Base Closure Executive Group (AF/BCEG) Mtg, 14 Sep 2004.

Maj Gen Heckman called the meeting to order at 0830, the Pentagon, Room 5C279. The meeting was categorized as informational. Attendance is at Atch 1. Maj Gen Heckman reviewed the BCEG schedule for September through January (Slides 3-4) and the JCSG Update schedule (Slide 5). [redacted] s updated the data calls (Slides 6). Maj Gen Heckman reviewed the BRAC 2005 Briefing to the Infrastructure Steering Group for the BCEG (Slides 7 and 1-30).

[redacted] reviewed Initial Scenario Proposals as a formatting concept for information (Slides 31-40). [redacted] briefed a summary of Phase II capacity analysis for information (Slides 41-48).

In a short deliberative session, the BCEG discussed the sensitivity of force structure numbers.

[redacted] briefed an updated description of the BRAC Cueing Model (Slides 50-66). [redacted] offered a model for Location Optimization of Continental United States strip Alert Sites Supporting Homeland Defense (Slides 68-88).

The meeting concluded at 11:45. The next BCEG meeting is scheduled for September 16, 2004 at 0830 in Pentagon Room 5C279.

[redacted]

SAF/GCN
BCEG Recorder

The minutes above are approved.

GERALD F. PEASE, JR.
SAF/IEB
Co-Chairman

GARY HECKMAN, Maj Gen, USAF
AF/XP (BRAC)
Co-Chairman

Attachments:
As Stated

Base Closure Executive Group Attendance Date: 14 Sep 04

Chairs

- ☑ Mr. Fred Pease
- ☑ Maj Gen Gary Heckman

****Voting members are underlined**

Primary Members	Alternate Members	Representatives
☑ BG William Holland	☐ Brig Gen Mike Lynch	☐
☑ Brig Gen Hanferd Moen	☐ Brig Gen Ethridge	☐
☑ Brig Gen Tony Haynes	☐ BG Butler	☐
☑ Mr. Fred Kuhn	☑ Col Karen Kohlhaas	☐
☑ Ms Kathy Ferguson	☐ Ms Cathy Sparks	☐
☑ Mr. Matt Mleziva	☐	☐
☑	☑	☐
☑ Mr. Jay Jordan	☐	☑
☐	☐ Brig Gen William Ard	☐
☑ Ms. Maureen Koetz	☐	☑

* Temporary appointment

Brubers

Others

- ☑
- ☑
- ☑
- ☑
- ☑
- ☑
- ☑
- ☑
- ☑

Headquarters U.S. Air Force

Integrity - Service - Excellence

BCEG

U.S. AIR FORCE

14 Sep 04

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Agenda
14 Sep 04

0830-0845	**Opening Business**	*Co-chairs*
	Calendar *Data Calls* *Action Items*	
0845-0945	**Initial Capacity Analysis**	
	-- Break --	
1000-1100	**AFSAA Cueing Tool** *Rules and Assumptions*	
	-- Break --	
1115-1230	**HLD Modeling Tool**	

BCEG Schedule
September

September BCEG Meetings

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 BCEG 0830-1300	3	4
5	6	7 BCEG 0830-1300	8	9 BCEG 0830-1300	ISG 1030-1200	
	BCEG (T) 0830-1300	14 BCEG 0830-1300	15	16 BCEG 0830-1300		
	20 BCEG (T) 0830-1300	21 BCEG 0830-1300	22	23 BCEG 0830-1300	24 ISG 1030-1200	25
26	-- CORONA --					

- 2025 Force (AF/XPX)
- MCI Re-attacks
- JCSG scenarios (AF)

- Metric (re-attack)
- MCI weights and flags
- Scenario process

- JCSG scenarios (AF)
- CORONA brief
- Initial scenario discussions

- AFSAA rules / assumptions
- Initial capacity analysis
- HLD brief
- Scenario discussions (cont'd)

- AFSAA cueing tool (operation)
- Scenario discussions (cont'd)
- JCSG briefs or future systems

- MV model (MCI tool)
- JCSG briefs or future systems

- JCSG Scenario Briefings
- Future systems
- Scenario Dev

- JCSG Scenario Briefings
- Future systems
- Scenario Dev

- JCSG Scenario Briefings
- Future systems
- Scenario Dev

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BCEG Schedule
Oct 04-Jan 05

Oct BCEG Meetings

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		Initial MCI Runs			1 ISG 1030-1200	2
3	4	5 BCEG: Review Initial MCI Output	6	7	8 ISG 1030-1200	9
10 Columbus Day	11	12 BCEG: Scenarios	13	14	15 ISG 1030-1200	16
17	18	19 BCEG: JCSG cross-checks	20	21	22 ISG 1030-1200	23
24/31	25	26 BCEG: Scenarios	27	28	29 ISG 1030-1200	30

Nov BCEG Meetings

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 BCEG: Candidate recommendations	3	4	5 ISG 1030-1200	6
7 JCSG Scenarios Complete	8	9 JCSG Updates	10	11 Veteran's	12 ISG 1030-1200	13
	15	16 BCEG / JCSG Reconciliations	17	18	19 ISG 1030-1200	20
21	22	23 BCEG / JCSG Reconciliations	24	25 Thanks-	26	27
28	29	30				

Dec BCEG Meetings

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 BCEG: Candidate recommendations		2	3 ISG 1030-1200	4
5	6	7 BCEG: Candidate recommendations	8	9	10 ISG 1030-1200	11
12	13	14 AF Rec's Complete	15	16	17 ISG 1030-1200	18
19	20	21	22	23	24 Christmas	25
26	27	28	29	30	31	

Jan BCEG Meetings

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					New Year's	1
2	3	4	5	6	7 ISG ?	8
9	10	11	12	13	14 ISG ?	15
16	17	18	19	20	21 ISG ?	22
23	24	25	26	27	28 ISG ?	29

As of: 1 Sep 04

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JCSG Update Briefings

Briefer	JCSG
Thursday, 23 Sep	
TBD	Supply and Storage
Mr. Mleziva	Technical
Col Hamilton	Medical
Tuesday, 28 Sep	
Mr. Van Gilst	Industrial
Thursday, 30 Sep	
Mr. Dumm	Intelligence
Mr. McCoy	H&SA
Col Walker	E&T

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Data Calls
(as of 13 Sep)

- Data Calls due to OSD 13 Sep (except DC 15)
- WIDGET currently off-line
  - DC 6: AFSPC, ANG
  - DC 7: AFSPC
  - DC 9: AFSPC, ANG
  - DC 10: AFSPC
  - DC 11: AFSPC, AFMC
  - DC 12: AFSPC
  - DC 13: AFSPC, AFMC

Data Call #	Data Call Title	Suspense To OSD	Current Status to OSD
1	Capacity	19 Mar	RFCs; 6 Questions/18 Bases
2	Military Value	13 Sep	Being reviewed by FPOC
3	HAF- Mil Val	13 Sep	Approved; 42/44 Questions Complete 4 Missing Paperwork

ISG Briefing

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BRAC 2005

Briefing to the
Infrastructure Steering Group

September 10, 2004

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Purpose

- Process Overview
- How an Idea becomes a Recommendation
- BRAC Scenario Tracking Tool

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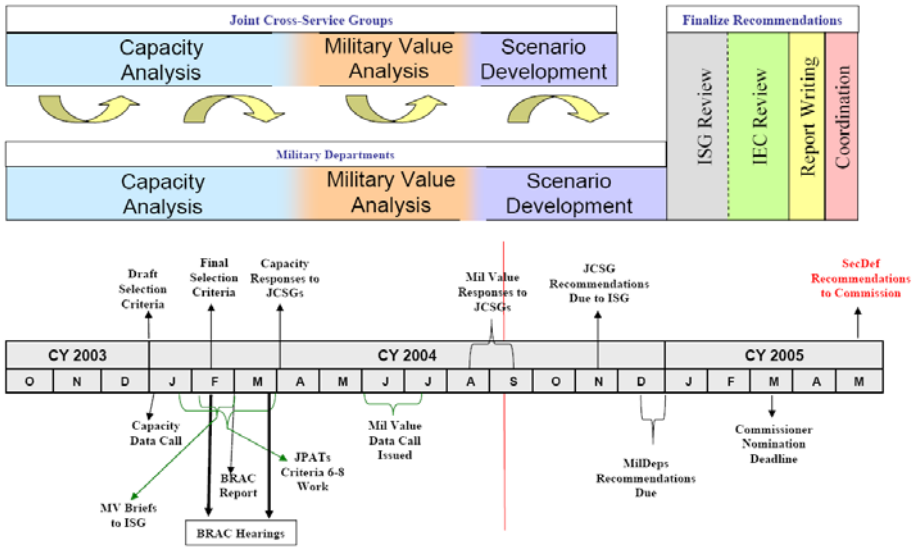
Process Overview



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How an Idea Becomes a Recommendation

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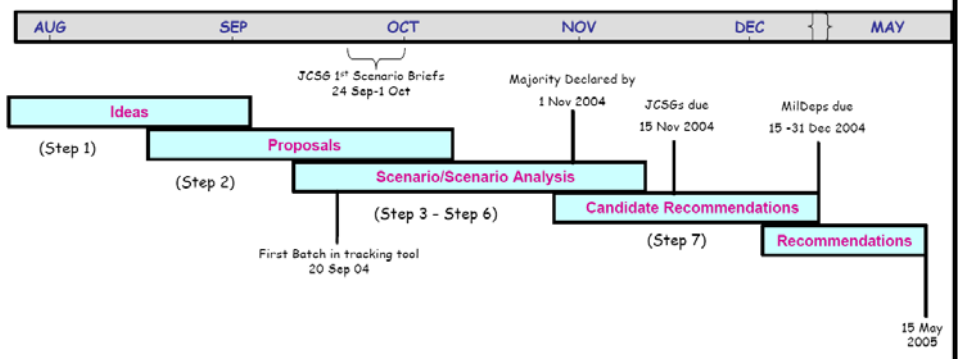
Timeline: How an Idea becomes a Recommendation



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Step 1: Generating Ideas

- Ideas: Concepts for stationing and supporting forces and functions that lack the specificity of a proposal or scenario
  - Transformational Options are Ideas
- Ideas do not need to be registered and tracked
  - Transformational Options – must be tracked
- BRAC 95 Example: Consolidate Navy pilot strike training at a single base to accommodate force structure changes.

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Step 2: Developing Proposals

- Proposal: A description of a potential closure or realignment action that has not been declared for formal analysis by respective deliberative body
  - Normally includes detail on transfer of unit(s), mission(s), &/or work activity and locations involved
- Come from Ideas or Optimization Tools (Data)
- Generated by staff for approval by respective deliberative bodies
- Registered at JCSG or MilDep for tracking

Coordination between MilDeps and JCSGs is Critical during Proposal Generation and Review

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BRAC 95 - Example of a Proposal

- Close NAS Meridian, MS
  - Relocate the Undergraduate Pilot Training function, personnel, equipment & support to NAS Kingsville, TX
  - Close Naval Technical Training Center (NTTC) (Major Tenant) & relocate its training functions to Naval Supply Corps School (NSCS) Athens, GA & Naval Education Technical Center (NETC) Newport, RI
  - Counterdrug Training Academy retains its facility (non-DoD)

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Step 3: Declaring Scenarios

- Scenario: A Proposal that has been declared for formal analysis by respective deliberative bodies
  - Each JCSG/MilDep reviews proposals and deliberates over which ones it wants to analyze
    - Must document which proposals do not move forward and why
  - Once declared, Scenario is registered at ISG by inputting it into the Scenario Tracking Tool
    - Scenarios deleted during analysis must be identified
- First batch due into tracking tool 20 Sep 04
  - Vast majority must be declared by 1 Nov 04

Coordination between MilDeps and JCSGs is Critical during Proposal Generation and Review

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BRAC 95 - Example of a Scenario

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  - Counterdrug Training Academy retains its facility (non-DoD)

Content of Scenario is same as content of a Proposal

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JCSG Scenario Briefings to ISG

- Require each JCSG to periodically update the ISG on Proposals considered and Scenarios declared
- Read Ahead for these updates
  - Fully describe each Proposal considered and summarize the result of deliberations, including rationale for declaring as a scenario or rejecting.
- Briefing Slides
  - Describe each declared scenario using the Quad chart format from the Scenario Training Exercise
  - List rejected proposals
  - Periodic updates would include status of scenario analysis
- Briefings 24 Sep - 1 Oct
  - Need additional meetings

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Step 4: Conflict Review

- DASs will regularly review Scenarios in Tracking Tool and categorize by consensus
  - Independent – No impact on Service /JCSG
    - DASs will advise JCSG to proceed to Scenario Analysis
  - Enabling – Action complements another Service/JCSG
    - DASs will advise JCSG to proceed to Scenario Analysis
  - Conflicting – Action competes with another Service/JCSG
    - Need formal review to resolve
    - Proceed to Step 5

JCSGs/MilDeps/OSD BRAC all have access to Scenarios in tracking tool

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Potential Scenario Conflicts (Examples)

- Doctrinal
  - Close all Senior Service Colleges, transfer mission to NDU
- Force Structure
  - AF close Wright Patterson AFB and Technical JCSG wants to relocate the Navy and AF RDT&E mission to Wright Patterson
- Facilities
  - 2 JCSGs and one MilDep have scenarios that use the same buildable acres for their new facility
- Culture
  - Close the military treatment facility at Pope AFB and receive medical care at Fort Bragg
- Statutory
  - Close all Depots, rely on private sector (conflicts with 50/50)
- Other
  - Close installation needed for START Treaty compliance

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Step 5: Resolving Conflicts

- DASs consider each conflict and propose resolution for ISG
- Methods of Resolving Conflicts
  - Allow all Conflicting Scenarios advance to Scenario Analysis;
    - Wait until full analysis to resolve conflict
  - Direct JCSGs (or by consent, MilDeps) to generate additional Scenarios to mitigate conflicts or provide broader option sets; or
  - Direct JCSGs (or by consent, MilDeps) to eliminate one or more of the conflicting Scenarios via following rules:
    - Outside their functional area
    - Nearly identical to another scenario (little benefit)
    - Assumption is incorrect
    - De minimis – not worth effort
    - Other

Unresolved Conflicts may have to go to the IEC

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Format for Presenting Conflicts for ISG Approval

Scenarios Involved	Conflicts
■ Close NAS Meridian, MS (DoN) ■ Consolidate Air Force Technical Training at NTTC NAS Meridian (AF) (Notional)	■ Force Structure
Drivers/Assumptions	**Proposed Resolution**
■ Eliminate excess infrastructure (DoN) ■ Consolidated Technical Training Established Joint Training (AF) ■ Principles – Recruit and Train/Organize (AF)	■ Generate Additional scenarios (Allows for a broader option set) •DoN to analyze retaining NAS Meridian •A/F to analysis consolidating at another locations

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Step 6: Scenario Analysis

- Responsibility for analysis is dependent on respective functions
- JCSGs/MilDep determine Scenario data needs
- MilDeps collect Scenario specific data
  - 48 Hours from question to data at JCSG
- JCSGs/MilDeps evaluate Scenarios against all 8 Selection Criteria
  - Must document analysis of each Scenario
  - Must justify termination of analysis
  - ISG will review JCSG documentation
- May result in candidate recommendations

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BRAC 95 – Example of Scenario Analysis

- Selection Criteria 1 – 4
  - Ability to conduct fixed-wing jet training received most weight and emphasis - Flight training/airspace & airfield facilities attributes
- MILVALUE rankings for DoN UPT Bases
  - NAS Pensacola – 75.65
  - NAS Kingsville (Strike) – 75.65
  - NAS Corpus Christi – 74.09
  - NAS Meridian (Strike) – 71.07
  - NAS Whiting Field – 68.97

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BRAC 95 – Example of Scenario Analysis

- Criterion 5
  - The return of on investment is immediate. The total estimated one time cost to implement is $83.4M. The net of all costs and savings is $158.8M . The annual recurring savings after implementation are $33.4M with an immediate payback. The net present value over 20 years is $471.2M
- Criterion 6
  - Assuming no economic recovery, the recommendation could result in a maximum potential reduction of 3324 jobs (2581 direct and 743 indirect) over the 1996-2001 period in the Lauderdale County, MS economic area, which is 8.0 percent of the economic area employment.
- Criterion 7
  - There is no community infrastructure impact at any receiving installation.
- Criterion 8
  - The closure of NAS Meridian will have a generally positive effect on the environment. UPT will be relocated to NAS Kingsville, which is in an air quality control district that is in attainment for CO, ozone, and PM-10. Clean-up at the six IR sites at NAS Meridian will continue. No impact was identified for threatened/endangered species, sensitive habitats and wetlands, cultural/historical resources, land/air space use, pollution control, and hazardous material waste requirements. Adequate capacity exists for all utilities at the receiving base, and there is sufficient space for rehabilitation or unrestricted acres available for expansion.

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Step 7: Candidate Recommendations

- A Scenario that a JCSG or Military Department has formally analyzed against all eight selection criteria and which it recommends to the ISG and IEC respectively for SecDef approval.
- JCSGs submit candidate recommendations to ISG by 15 November.
- MilDeps submit to ISG by 31 December (15 Dec Target)
  - For information and conflict identification only, not approval
- ISG
  - Reviews JCSG recommendations to advise IEC
  - Isolates conflicts among JCSGs and MilDeps recommendations and develops position for IEC consideration

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BRAC 95 - Example of Candidate Recommendation

- Recommendation: Close NAS Meridian, MS, except retain Counterdrug Training Academy (non-DoD). Relocate Undergraduate Strike Pilot Training function and associated personnel, equipment, and support to NAS Kingsville, TX. Its major tenant, NTTC, will close, and its training functions will be relocated to other training activities, primarily the NSCS, Athens, GA., and NETC, Newport, RI.
- Candidate Recommendation will also include:
  - Justification
  - Payback (formerly Return of Investment)
  - Impacts

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BRAC Scenario Tracking Tool

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BRAC Scenario Tracking Tool

- Central Repository
- Registration
- Tracks key Scenario information
- Snapshot of what is going on
- Source for identification of Potential Conflicts
- Quantifies actions being conducted at an installation
- Standardizes nomenclature

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BRAC Scenario Tracking Tool

- Each Scenario must:
  - Include owner, number, and title for easy identification
  - Specify units/missions/work effort to be transferred
  - Identify losing and receiving sites
  - Address tenants or other facilities/activities that are impacted
  - Reference applicable Transformation Options and Principles
  - Additional info/milestones will be required as analysis proceeds

Includes necessary information to inform ISG

Initial Scenario Proposals

AF Scenario Proposal
Access to Space

Drivers/Assumptions	Scenario Proposal
■ **Imperative: Unimpeded access to space in orbits of all inclinations** ■ **Transformational Options: N/A**	■ **Determine those specific installations that must be retained to ensure all inclinations launch to space**
Justification/Impact	**Potential Conflicts**
■ **Maintains National space launch requirements**	■ **None**

AF Scenario Proposal
POTUS Support

Drivers/Assumptions	Scenario Proposal
■ **Imperative: Maintain capability within the NCR to support the POTUS, Special Airlift Missions, foreign dignitary visits, and ensure Air Force Continuity of Operations** ■ **Transformational Options: N/A**	■ **Determine AF installation(s) best suited to support POTUS, SAM, foreign dignitary visits, and Continuity of Operations capabilities**
Justification/Impact	**Potential Conflicts**
■ **Potential unacceptable delays to Continuity of Operations** ■ **Secure access to/from APOE/D from Washington DC** ■ **Immediate access to large range airlift**	■ **None**

AF Scenario Proposal
Air Sovereignty/Air Defense

Drivers/Assumptions	Scenario Proposal
■ **Imperative: Basing to fulfill the air sovereignty protection site and air defense response criteria stipulated by COMNORTHCOM and COMPACOM** ■ **Transformational Options: N/A**	■ **Determine AF installations required to support air sovereignty/air defense mission**
Justification/Impact	**Potential Conflicts**
■ **Support GWOT** ■ **Defend the homeland**	■ **None**

AF Scenario Concept

Beddown OCONUS Forces

Drivers/Assumptions	Scenario Proposal
■ **Principle: Retain the capacity to absorb overseas forces with the United States and its territories** ■ **Transformational Option: N/A**	■ **Determine minimum list of AF installations required to beddown all OCONUS forces**
Justification/Impact	**Potential Conflicts**
■ **Ensures surge capability to accommodate natural disaster evacuations, mobility operations, and routine airfield repairs**	■ **None**

AF Scenario Proposal

Consolidate B-52 Legacy Fleet

Drivers/Assumptions	Scenario Proposal
■ **Principle: Consolidate legacy fleet** ■ **Transformational Option: N/A**	■ **Realign current B-52 force structure so as to consolidate at as few locations as practicable**
Justification/Impact	**Potential Conflicts**
■ **Efficiency of operation** ■ **Ensures force available for 10 AEFs** ■ **Ensure smooth transition of force out of inventory at a future date**	■ **None**

AF Scenario Proposal

Consolidate B-1 Legacy Fleet

Drivers/Assumptions	Scenario Proposal
■ **Principle: Consolidate legacy fleet** ■ **Transformational Option: N/A**	■ **Realign current B-1 force structure so as to consolidate at as few locations as practicable**
Justification/Impact	**Potential Conflicts**
■ **Efficiency of operation** ■ **Ensures force available for 10 AEFs** ■ **Ensure smooth transition of force out of inventory at a future date**	■ **None**

AF Scenario Proposal

Consolidate A-10 Legacy Fleet

Drivers/Assumptions	Scenario Proposal
■ **Principle: Consolidate legacy fleet** ■ **Transformational Option: N/A**	■ **Realign current A-10 force structure so as to consolidate at as few locations as practicable**
Justification/Impact	**Potential Conflicts**
■ **Efficiency of operation** ■ **Ensures force available for 10 AEFs** ■ **Ensure smooth transition of force out of inventory at a future date**	■ **None**

AF Scenario Proposal

Consolidate F-16 Legacy Fleet

Drivers/Assumptions	Scenario Proposal
■ Principles: Consolidate legacy fleet ■ Principles: Optimize squadron size ■ Transformational Option: N/A	■ Realign current F-16 force structure by MDS/block type so as to consolidate like MDS/block type at as few locations as practicable
Justification/Impact	**Potential Conflicts**
■ Efficiency of operation ■ Ensures force available for 10 AEFs ■ Ensure smooth transition of force out of inventory at a future date	■ None

Agenda

14 Sep 04

0830-0845	**Opening Business**	*Co-chairs*
	Calendar *Data Calls* *Action Items*	
0845-0945	**Initial Capacity Analysis**	
	-- Break --	
1000-1100	**AFSAA Cueing Tool**	*M*
	Rules and Assumptions	
	-- Break --	
1115-1230	**HLD Modeling Tool**	

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Phase II Capacity Analysis

U.S. AIR FORCE

14 Sep 04

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Capacity Summary Overview

- Represents a broad view of theoretical capacity in 2011
- Use MAJCOM-developed templates for *specific* weapon system, as approved by BCEG
  - Must be consistent with *certified data* from Data Call # 1
  - Must be able to execute within current boundary
  - Follow existing siting, design, and construction directives
  - Facilities must be complete to permit occupancy by end of 2011

Type Unit	Sqdn / Wing (PAA) (Sqdns)
Fighter	24 / 3
Attack	24 / 3
Bomber	12 / 3
Tanker (Except KC-10)	16 / 4
Large Transport (C-5, C-17)	12 / 4
C-130 Transport	16 / 4
Special Operations	7 / 4

First run based on POM 06 force structure type and capacity data provided by MAJCOMs

Capacity Summary
Table Guide

Total number of aircraft divided by the standard PAA. Includes fractions of sqdns

Total number of squadrons including those that can be added at no cost

Total number of full squadrons

Total number of squadrons including squadrons that can be added to (4) at a cost

Total number of aircraft forecast to be in place in 2011 (by MCI)

Total capacity including fractional squadrons that can be added to (5)

		(1) Total Acft #	(2) Total Sqdns	(3) Sqdn Equiv	(4) + Sqdns Equiv for $0	(5) + Additional Sqdns Equiv Capacity	(6) Total Capacity
MCI							
FTR		2011	42	83.8	98.0	136.0	146.8

Capacity Summary
Fighters

MCI		Total Acft #	Total Sqdns	Sqdn Equiv	+ Sqdns Equiv for $0	+ Additional Sqdns Equiv Capacity	Total Capacity
FTR		2011	100.0	83.8	98.0	136.0	146.8
BOMBER		176	13.0	15.5	15.5	22.5	23.3
TANKER		487	42.0	31.6	32.0	39.0	46.5
TAC AIRLIFT		503	53.0	36.8	39.0	48.0	55.9
STRAT AIRLIFT		276	22.0	23.0	23.0	30.0	34.4
VIP/SAM		26	4.0	4.3	4.3	4.3	4.3
C2ISR		131	19.0	17.7	17.7	19.7	19.7
SOF/CSAR		176	26.0	25.1	26.0	30.0	30.7
UAV		137	5.0	5.5	6.0	10.0	10.0
OTHER		442	31.0	30.5	30.5	33.5	33.5
TOTALS		4365	315.0	273.7	292.0	373.0	405.1

Capacity Summary
Tankers

MCI		Total Acft #	Total Sqdns	Sqdn Equiv	+ Sqdns Equiv for $0	+ Additional Sqdns Equiv Capacity	Total Capacity
FTR		2011	100.0	83.8	98.0	136.0	146.8
BOMBER		176	13.0	15.5	15.5	22.5	23.3
TANKER		487	42.0	31.6	32.0	39.0	46.5
TAC AIRLIFT		503	53.0	36.8	39.0	48.0	55.9
STRAT AIRLIFT		276	22.0	23.0	23.0	30.0	34.4
VIP/SAM		26	4.0	4.3	4.3	4.3	4.3
C2ISR		131	19.0	17.7	17.7	19.7	19.7
SOF/CSAR		176	26.0	25.1	26.0	30.0	30.7
UAV		137	5.0	5.5	6.0	10.0	10.0
OTHER		442	31.0	30.5	30.5	33.5	33.5
TOTALS		4365	315.0	273.7	292.0	373.0	405.1

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Capacity Summary
Airlift

MCI		Total Acft #	Total Sqdns	Sqdn Equiv	+ Sqdns Equiv for $0	+ Additional Sqdns Equiv Capacity	Total Capacity
FTR		2011	100.0	83.8	98.0	136.0	146.8
BOMBER		176	13.0	15.5	15.5	22.5	23.3
TANKER		487	42.0	31.6	32.0	39.0	46.5
TAC AIRLIFT		503	53.0	36.8	39.0	48.0	55.9
STRAT AIRLIFT		276	22.0	23.0	23.0	30.0	34.4
VIP/SAM		26	4.0	4.3	4.3	4.3	4.3
C2ISR		131	19.0	17.7	17.7	19.7	19.7
SOF/CSAR		176	26.0	25.1	26.0	30.0	30.7
UAV		137	5.0	5.5	6.0	10.0	10.0
OTHER		442	31.0	30.5	30.5	33.5	33.5
TOTALS		4365	315.0	273.7	292.0	373.0	405.1

Key Considerations

- Standard wing size (e.g. 3 squadrons per wing for fighters, 4 squadron per wing for airlift, etc)
  - ARC consolidation—standard squadron size
- Complicating factors:
  - Consolidation of legacy systems
  - ARC-to-Active; Active-to-ARC
    - Maintain Active-ARC mix
  - Cost
- Limits to reducing Theoretical Excess Capacity
- Impact of 2025 Force Structure
  - Maintain capacity/capability for future weapon systems

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Questions?

Agenda
14 Sep 04

0830-0845	**Opening Business**	Co-chairs
	Calendar *Data Calls* *Action Items*	
0845-0945	**Initial Capacity Analysis**	Maj [illegible]
	-- Break --	
1000-1100	**AFSAA Cueing Tool** *Rules and Assumptions*	Maj [illegible]
	-- Break --	
1115-1230	**HLD Modeling Tool**	[illegible]

Headquarters U.S. Air Force

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BRAC Cueing Model Description

DRAFT

U.S. AIR FORCE

AFSAA/SAPC
September 2004

Cueing Model Overview

- Problem statement
- General description of model
- Taxonomy
- Model inputs
- Model implementation
- Additional features
- Modeled imperatives
- Model outputs
- Possible improvements

Problem Statement

- Develop an analytical model to support BRAC deliberations which optimally beds down (allocates to bases under consideration) a specified force structure such that Military Value is maximized and the number of bases required is minimized.
- The allocation of force structure is constrained by a number of modeled USAF policy imperatives, the capacity of the available bases to host aircraft by type (MDS), maximum squadron size by MDS and maximum wing size by MDS.
- Once the optimal solution(s) to the problem in terms of Military Value is determined and without trading Military Value, search for an optimal solution which most improves the Additional Considerations defined by OSD.

General Description

- **Military Value is defined by OSD based on 4 criteria:**
  1. Current and Future Mission
  2. Condition of Infrastructure
  3. Contingency and Mobilization
  4. Cost of Operations and Manpower
- **Additional Considerations are defined by OSD based on 3 criteria:**
  6. Economic Impact on the existing communities in the vicinity of military installations
  7. Ability of both the existing and potential receiving communities' infrastructure to support forces, missions and personnel
  8. Environmental impact of costs related to potential environmental restoration, waste management and environmental activities
- **Criterion 5, Return on Investment, is *not* evaluated in the Cueing Model (it is evaluated using the COBRA cost model)**

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General Description

- **The optimization approach used to assess this problem is a Binary Integer Goal Program (BIGP) - Termed the *AFSAA Cueing Model***
  - **Bases are either part of the optimal solution or not (binary decision)**
  - **The first goal is to allocate force structure to the smallest number of bases with the greatest Military Value subject to capacity, size of units and policy imperatives**
  - **The second goal is to maximize Additional Considerations**
  - **The first goal preempts the second – the model searches the multiple optimal solutions to the first goal for a solution which most improves Additional Considerations**
- **Results of this approach serve as a *starting point* for further analysis**
  - **The optimal solution to this BIGP Cueing Model is *not* a final solution to the USAF BRAC problem as a number of USAF policy imperatives are not modeled and joint and other issues are not evaluated**

Taxonomy

- **Mission Capability Index (MCI) defines the military value of every base for a set of missions:**
  - **Special Operations and Combat Search and Rescue (SOF/CSAR)**
  - **Fighter**
  - **Bomber**
  - **Unmanned Aerial Vehicle and Unmanned Combat Aerial Vehicle (UAV/UCAV)**
  - **Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR)**
  - **Tanker**
  - **Airlift**
  - **Space Operations**
  - **Air Reserve Component (ARC)**

Taxonomy

- ***Force structure*** **in the model is the number of PAA aircraft by MDS**
- ***Aircraft families*** **in the model are aircraft by MDS which may be substituted for each other in the force allocation (F/A-22 and F-15C/D, for example)**
- ***Squadron size*** **is the number of PAA aircraft assigned to a given squadron by family (where a family may contain one or more MDS)**
- ***Wing size*** **is the number of squadrons assigned to a wing by family**
- ***Policy imperatives*** **are constraints on bases or sets of bases which must be, either in whole or in part (depending on the particular imperative), included in any optimal solution to the problem**

Inputs

- Bases by name under consideration for BRAC – *154 bases in CONUS, HI, AK and Guam*
- Force structure to allocate – *projected FY11 worldwide force structure*
- Capacity of bases by squadron of MDS – *defined by MAJCOM data and PDS (for bases not contained in MAJCOM data)*
- ROM Cost by squadron of MDS for additional capacity at each base – *defined by MAJCOM data*
- Maximum ROM cost allowed for capacity allocation – *user defined*
- Military value by MCI for every base – *from AF/IEB model output*
- Mapping of MCI to MDS and/or family – *from AF/IEB*
- Additional considerations scores for every base – *from AF/IEB*
- Weight of additional considerations relative to each other – *user defined*
- Detailed descriptions of policy imperatives to model – *from AF/IEB*
- Squadron size by MDS, family and/or MCI – *user defined*
- Wing size by MDS and/or family – *user defined*

Notional Military Value Data

	A	B	C	D	E	F	G	H	I	J
1	Filter Military Value Scores									
2										
3	Bases	SOF/CSAR	Fighter	Bomber	UAV/ UCAV	C2ISR	Tanker	Airlift	Space Ops	ARC
4	Altus	75	85	85	85	95	95	90	0	90
5	Andersen	75	85	90	60	85	95	85	0	0
6	Andrews	65	65	50	65	75	80	85	0	90
7	Arnold	0	0	0	0	0	0	0	0	70
8	ARPC	0	0	0	0	0	0	0	0	90
9	Atlantic City	65	80	80	60	85	85	75	0	85
10	Bangor	50	65	65	50	70	85	75	0	70
11	Barksdale	75	85	95	70	80	95	80	0	85
12	Barnes	70	65	50	50	75	75	75	0	80
13	Beale	65	65	75	60	90	85	70	0	65
14	Birmingham	65	65	50	55	80	80	75	0	80
15	Boise	65	65	50	60	75	70	60	0	65
16	Bolling	0	0	0	0	0	0	0	0	70
17	Bradley	65	65	50	50	65	75	75	0	80
18	Brooks	0	0	0	0	0	0	0	0	80
19	Buckley	65	65	50	50	75	75	65	0	75
20	Burlington	50	65	50	50	50	65	65	0	50
21	Cannon	65	90	90	95	80	75	65	0	50
22	Capital	65	75	50	50	65	65	65	0	80
23	Carswell	65	85	90	65	85	85	75	0	95
24	Channel Islands	0	60	50	55	65	65	65	0	70
25	Charleston	65	65	50	50	80	80	90	0	85
26	Charlotte/Douglas	65	65	50	50	75	80	70	0	80
27	Cheyenne AGS	50	65	50	75	75	75	65	0	80
28	Cheyenne Mountain	0	0	0	0	0	0	0	90	90
29	Columbus	65	70	50	70	80	80	70	0	85
30	Dane	65	70	50	50	70	60	60	0	85
31	Dannelly	65	75	50	50	70	75	70	0	85

NOTIONAL

Capacity | Mil Val | Linking | Criteria6_8 | New Master | LTC Milam Mil Val Scores | Form

MAJCOM Capacity Data

Filter	Mil Val Score	Families	Current Number of Squadrons	Number of Squadron Slots	MAJCOM	Installation	MDS	PAA	Sqdn 1	Sqdn 2	Sqdn 3	Sqdn 4
Fighter	95	1	3	5	ACC	Davis-Monthan	A-10	24	X	X	X	$30.0
Fighter	80	1	1	1	PACAF	Eielson	A-10	24	X			
Fighter	85	1	1	3	AFRC	Whiteman	A-10	24	X	$6.4	-	
Fighter	85	1	1	3	AFRC	Barksdale	OA-10	24	X	$3.3	$34.3	
Fighter	75	1	1	3	AFRC	New Orleans	OA-10	24	X	$32.9	-	
Bomber	95	2	3	5	ACC	Dyess	B-1	12	X	X	X	$60.9
Bomber	95	2	2	4	ACC	Ellsworth	B-1	12	X	X	$13.9	$50.6
Bomber	90	3	2	4	ACC	Whiteman	B-2	8	X	X	$151.8	$159.0
Bomber	90	4	0	2	PACAF	Andersen	B-52	12	$347.7	$96.7		
Bomber	95	4	3	5	ACC	Barksdale	B-52	12	X	X	X	$49.8
Bomber	95	4	1	3	ACC	Minot	B-52	12	X	$32.2	$106.3	
Bomber	95	4	3	5	ACC	Minot	B-52	12	X	X	X	$57.4

Model / Imperatives / Capacity / Mil Val / Linking / Criteria6_8 \ New Master / LTC Milar

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Other Notional Considerations Data

	A	B	C	D	E	F	G	H	I	J
1	***Criteria 6_8 Considerations***									
2			Weights	0.5	0.05	0.05	0.05	0.05	0.05	0.05
3				Criteria 6	Criteria 8.1	Criteria 8.2	Criteria 8.3	Criteria 8.4	Criteria 8.5	Criteria 8.6
4	0.6									
5										
6	**Variables**	**Variable Values**	**Aggregate Score**							
7	Altus	1.0	25.0	0	1	0	0	1	1	0
8	Andersen	1.0	70.0	1	1	1	0	0	1	1
9	Andrews	1.0	40.0	0	1	1	0	1	0	1
10	Arnold	0.0	20.0	0	1	0	0	1	1	0
11	ARPC	0.0	45.0	0	1	1	1	1	1	1
12	Atlantic City	0.0	35.0	0	0	1	0	1	1	1
13	Bangor	0.0	85.0	1	1	0	0	1	0	1
14	Barksdale	1.0	75.0	1	0	0	0	1	0	1
15	Barnes	0.0	20.0	0	0	0	0	1	1	1
16	Beale	1.0	80.0	1	1	1	0	1	0	0
17	Birmingham	0.0	35.0	0	0	1	1	1	1	1
18	Boise	0.0	70.0	1	1	0	0	0	0	0
19	Bolling	0.0	60.0	1	0	0	1	1	0	0
20	Bradley	0.0	80.0	1	0	1	1	0	1	1
21	Brooks	0.0	70.0	1	1	0	0	1	1	0
22	Buckley	0.0	70.0	1	0	0	1	1	0	0
23	Burlington	0.0	75.0	1	1	1	1	0	0	1
24	Cannon	0.0	25.0	0	0	0	1	1	1	0
25	Capital	0.0	25.0	0	1	0	0	1	0	0
26	Carswell	0.0	85.0	1	1	1	1	1	0	0
27	Channel Islands	0.0	15.0	0	0	1	0	0	1	0
28	Charleston	1.0	70.0	1	0	0	1	0	0	1
29	Charlotte/Douglas	0.0	25.0	0	0	0	1	1	1	1
30	Cheyenne AGS	0.0	35.0	0	1	0	1	0	0	1

Capacity / Mil Val / Linking \ **Criteria6_8** / New Master / LTC Milam Mil Val Scores / Form

Model Implementation

- First the model optimally allocates force structure to the smallest number of bases (Goal 1):
  - With the greatest Military Value based on appropriate MCI
  - No base of lesser Military Value by MCI is allowed to host force structure until higher Military Value bases are at full capacity (unless the base is otherwise required by a policy imperative)
  - Subject to capacity by family
  - Buying additional capacity up to the maximum cost (may be zero)
  - Restricted to the maximum squadron and wing sizes provided
  - Meeting all of the modeled imperatives
  - Some bases may be included in the solution which are not part of the force structure (aircraft) allocation owing to the nature of a policy imperative (ICBM strategic deterrence, for example)

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Binary Integer Programming

- Decision variables: $X_i = \begin{cases} 1, \text{ if base } i \text{ is in the solution} \\ 0, \text{ otherwise} \end{cases}$

  $i = 1 \ldots n$ and n = number of bases

- Formulation:

  Minimize ΣX_i over all i finds the minimum set of bases

  Subject to: Force Structure allocates force structure to bases

  Military Value chooses higher MV bases first

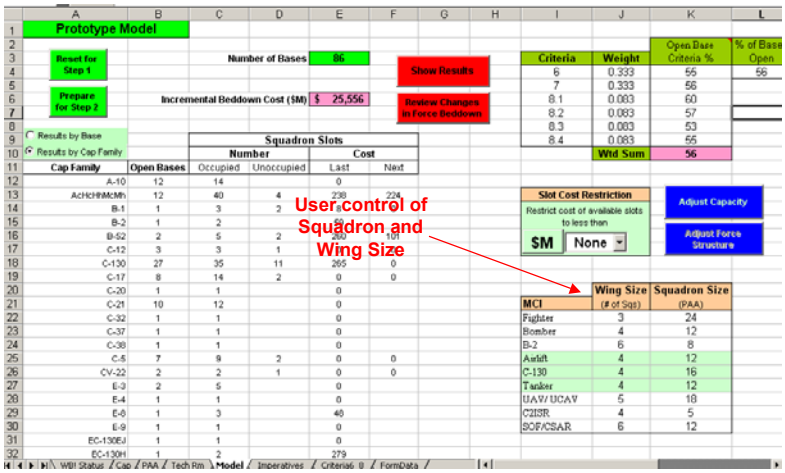
  Imperatives meeting the stated imperatives

  Squadron Size

  Wing Size

  $X_i = \{0,1\}$ for all i no partial bases

Modified GUI



Wing Size Enforced by Base

				Installation Capacity				
				Family of Systems	Number of Squadron Slots			
MCI	Mil Val Score	MAJCOM	Installation	Occupying Slots	Max	Useable	Occupied in Baseline	Slot Size
Fighter	85	afr	Barksdale	A-10	1	1	1	12
Fighter	65	ang	Barnes	A-10	1	1	1	12
Fighter	65	ang	Boise	A-10	1	1	1	12
Fighter	65	ang	Bradley	A-10	1	1	1	12
Fighter	95	acc	Davis-Monthan	A-10	4	3	3	24
Fighter	80	paf	Eielson	A-10	1	1	1	24
Fighter	65	ang	Martin	A-10	1	1	1	12
Fighter	95	unk	Nellis	A-10	1	1	1	24
Fighter	75	afr	New Orleans	A-10	1	1	1	12
Fighter	85	afr	Whiteman	A-10	1	1	1	12
Fighter	75	ang	Willow Grove ARS	A-10	1	1	1	12
Fighter	70	ang	WK Kellogg	A-10	1	1	1	12

Wing Size for fighters limited to 3 squadrons

Possible Improvements

- Include an imperative to insure basing to support Homeland Security based on the math program developed by AFIT and sponsored by AF/IEB*:
  - HLS fighter force structure
  - HLS tanker force structure (add to thesis model)
  - HLS command and control facilities (add to thesis model)
- Calculate PAA from TAI based on the algorithm used to develop USAF Force Tabs and/or model capacity at bases by number of aircraft (versus number of squadrons)
- Use CBLP to determine force structure capacity for every MDS at every base under consideration

* Eberlan, Jon A. Location Optimization of Continental United States Strip Alert Sites Supporting Homeland Defense. MS Thesis. AFIT/GLM/ENS/04-02. March 2004.

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Questions?

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Agenda
14 Sep 04

0830-0845	**Opening Business**	*Co-chairs*
	Calendar *Data Calls* *Action Items*	
0845-0945	**Initial Capacity Analysis**	
	-- Break --	
1000-1100	**AFSAA Cueing Tool**	
	Rules and Assumptions	
	-- Break --	
1115-1230	**HLD Modeling Tool**	

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Location Optimization of Continental United States Strip Alert Sites Supporting Homeland Defense

ACC/LGPA
14 Sept 04

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Overview

- Problem Statement
- Research Questions
- Data and Methods
- Results and Analysis
- Conclusions/Recommendations

Problem Statement

- Alert aircraft pre-Sept 11 not utilized to level post-Sept 11
  - Aircraft and sites could be positioned based on existing infrastructure rather than optimal network performance
- President's Homeland Security Strategy requires alert aircraft to play more dominant role in homeland defense
- Alert aircraft and sites need to be optimally located for maximum alert network efficiency and effectiveness

Research Question

What are the optimal strip alert locations in the Continental United States for aircraft in support of homeland defense?

Data and Methods

- **ACC Homeland Security Division provided following objectives:**
  1. **Minimize number of alert locations to cover the areas of interest**
  2. **Minimize aircraft response time; minimize aggregate network distance or average distance traveled per network location**
  3. **Cover all areas of interest with at least one site**
  4. **Minimize the maximum travel distance for an aircraft serving a demand area in the network**

Data and Methods

- Location Set Covering Problem (LSCP) used to find minimum "p" number of sites given response requirement
- P-median algorithm used to find the minimum aggregate distance given number of sites
- P-center algorithm finds minimized maximum distance or worst case scenario given number of sites
- The LSCP solution is used first to find the minimum p-number of sites for the p-median and p-center algorithms

Data and Methods

- ACC/DOH provided following criteria for candidate alert sites:
  1. Candidate site must be existing CONUS joint use airfield
  2. Candidate site's runway must be >= 8000'
- Criteria resulted in 202 suitable candidate alert sites; obtained sites and their lat/long coord. from DoD *IFR – Supplement United States* 4 Sept 2003

Data and Methods

- First Air Force AOC provided list of 70 areas of interest requiring alert aircraft coverage—provided lat/long coord.
  - Type I Areas – Require constant strip alert coverage; 66 areas—Population Centers, DOE, NRC, and Chem Sites
  - Type II Areas – Require alert coverage when requested by NORAD/NORTHCOM; 4 areas—POTUS, VPOTUS
- First Air Force Provided Information on Network Operating Characteristics
  - Notional Aircraft Launch Times of 8 min per site used except site 69—launch acft in 5 min
  - Maximum Aircraft Speed of 9 NM per minute in network

Data and Methods

- First Air Force AOC provided the following desired response times broken out by area type:

Area Type	Desired Response	Specific Area Exceptions
Type I (Areas 1-27 and 31-69)	≤ 20 minutes after notification	Area 13 response time is ≤ 12 minutes after notification
Type II (Areas 28, 29, 30, and 70)	≤ 12 minutes after notification	Area 70 response time is ≤ 20 minutes after notification

Data and Methods

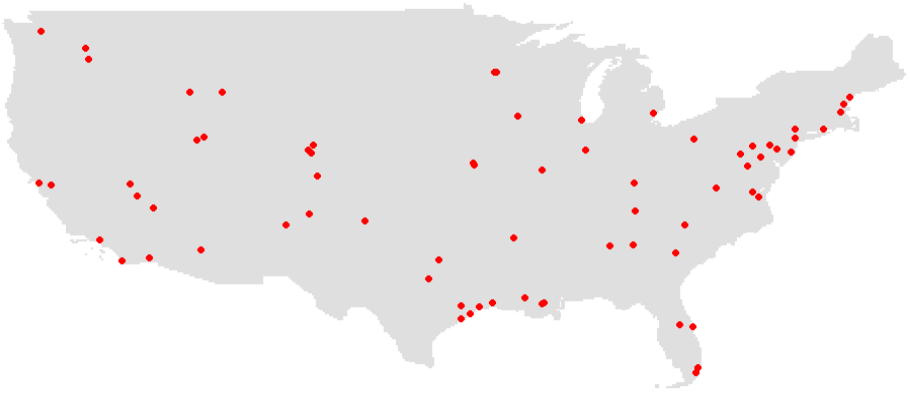
- Model run four different ways given inputs:
  - Consider all joint use sites with Type I areas
  - Consider all joint sites with Type I and Type II areas
  - Consider all joint sites with Type I and Type II areas removing sites from previous solution set
  - Consider AF only sites with Type I areas

Results and Analysis

- Original Model Set I Run with 8 Min Launch and 9 NM per minute aircraft speed produced infeasible solution
  - Closest site to area 38 is 141.753 NM and closest site to area 66 is 125.86 NM—not within critical distance of 108 NM
    - Maximum distance had to be relaxed to respective 142 NM and 126 NM for the model to successfully run
  - Above situations dealt with by relaxing response constraints as opposed to assuming CAPs or loosening length of runway constraint
- 141.753 NM found as p-center solution for all runs of Model Sets I and IV
- 163.8086 NM discovered as p-center solution for Model Sets II and III—corresponds to Type II area 70

Network Solution

CD = 108NM



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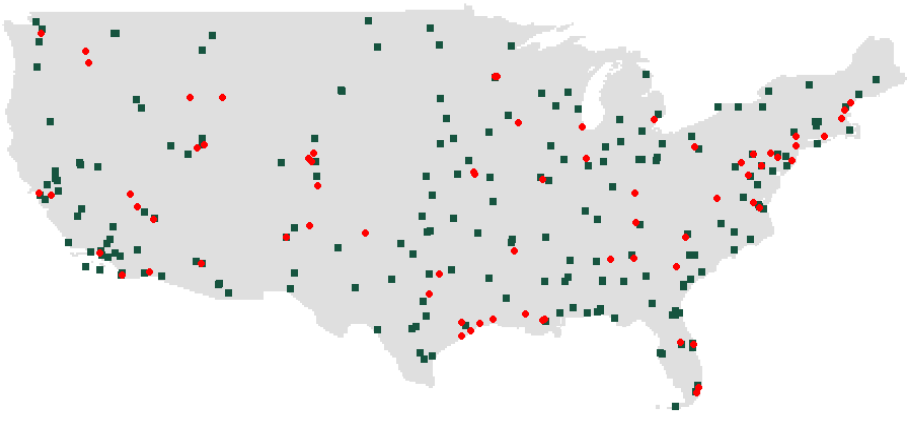
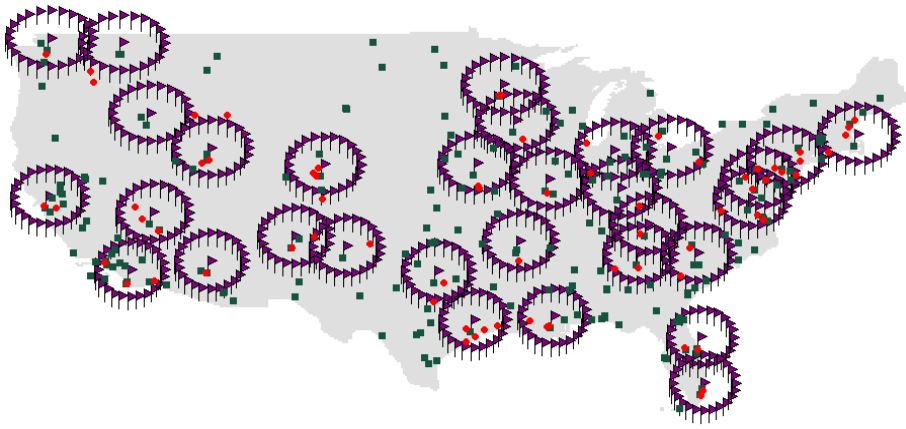
Network Solution

CD = 108NM



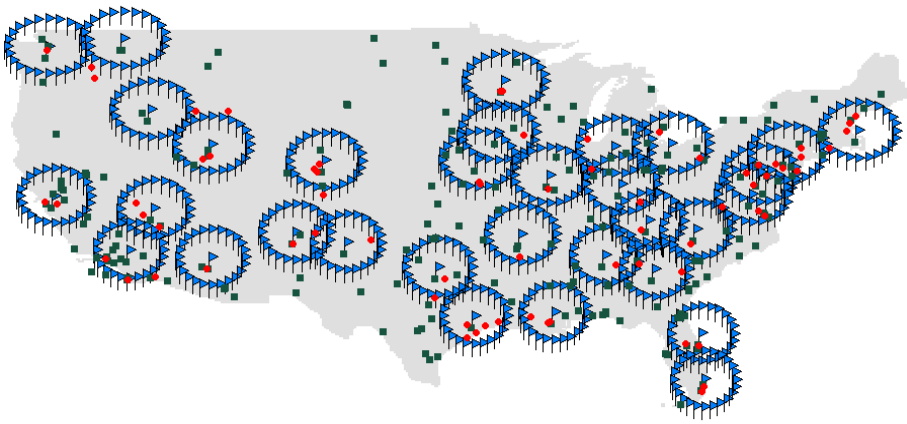
Network Solution

Joint Use, CD = 108NM



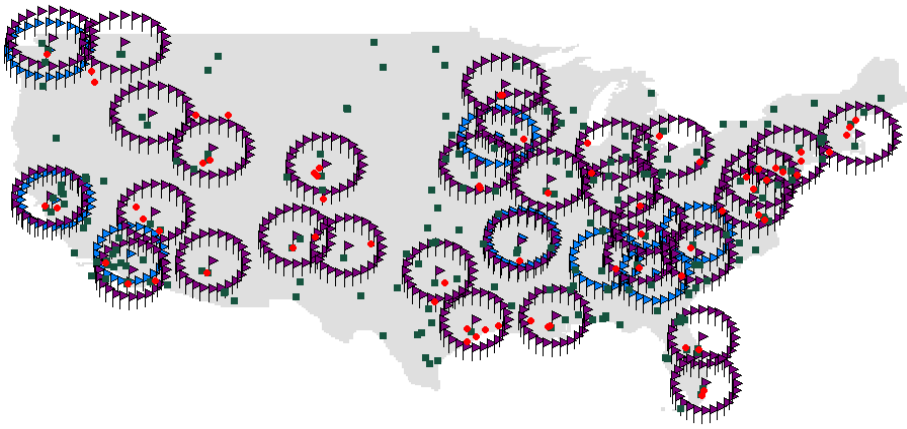
Network Solution

AF Only, CD = 108NM



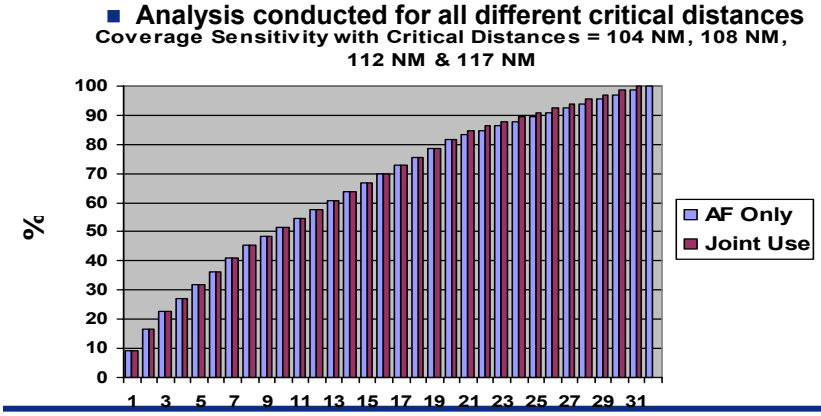
Network Solution

Joint Use over AF Only, CD = 108NM



Results and Analysis

- Coverage Sensitivity with noted CDs shows that the joint use solution can cover 1.5% more of the demand with one less alert site until a level of 20 alert sites
  - Analysis conducted for all different critical distances



Conclusions

- Results of model sets demonstrated that solutions in the critical distance range of 104 NM – 117 NM were relatively insensitive to changes in input parameters
  - Gives air defense planners a configuration that holds for a variety of launch time and aircraft speed combinations
  - Joint Use and Air Force only solutions differed by one site; joint use aggregate network distance lower with one less site until approx 126 NM critical distance is reached
- Model robust enough to remove sites and areas from consideration and re-solve to see overall impact on network

Recommendations

- Evaluate areas requiring critical distance relaxation to see if response time is acceptable
  - If unacceptable possible CAP as needed or loosen LOR constraint
- Explore the feasibility of incorporating joint sites into network; results showed solution better with one less site until approx. 126 NM
- Evaluate alert sites in solution for critical distances between 104 NM and 117 NM for infrastructure and supportability; prohibitive costs could make sites undesirable

Recommendations

- If no supportability problems exist, recommend implementation of results computed for critical distances between 104 NM, 108 NM, 112 NM and 117 NM
  - Site selection and number depends on Joint Use vs AF Affiliated as well as incorporating into current network configuration
- Exclude Type II areas from permanent network due to variability of sites; all sites are binding and cause lower overall network performance
  - Continue to deploy resources as needed

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Questions?

Agenda
15 Sep 04

0830-0845	**Opening Business**	*Co-chairs*
	Calendar *Data Calls* *Action Items*	
0845-0945	**Initial Capacity Analysis**	*Mr. Mayes, IEBB*
	-- Break --	
1000-1100	**AFSAA Cueing Tool** *Operation*	*Maj. Rob Renfro, AFSAA*
	-- Break --	
1115-1230	**HLD Modeling Tool**	*Maj Eberlan, ACC/LGX*