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Joint Statement of

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Under Secretary of Defense for Acquisition and Technology
and
General Joseph W. Ralston, USAF
Vice Chairman of the Joint Chiefs of Staff

Before the
Subcommittee on Research & Development and the
Subcommittee on Procurement
of the
House Committee on National Security
on
The DoD Tactical Aviation Modernization Program

June 27, 1996

Chairman Weldon, Chairman Hunter, members of the subcommittees, thank you for the opportunity to appear today to discuss our plans for one of the Department's most important priorities—modernization of US tactical aviation forces. With your strong support and direction, we have worked diligently to field forces capable of deterring conflict by demonstrating to any potential enemy that US Forces will have air dominance. If that deterrence fails we will have the capability to protect our forces from air attack at the start of hostilities. And within hours we will be on a path that will end the conflict decisively. Some will say in today's world air power is not important--that the threat does not warrant our investment. But aircraft exist today that can challenge U.S. aircraft. For example, the SU-27 Flanker and MIG-29 Fulcrum have superior aerodynamic qualities and propulsion systems. Aircraft in development, such as the RAFALE, EF-2000, and SU-35 project increased potential to challenge U.S. aircraft. As you recall, we used to talk about the requirement for air superiority and spoke in terms of kill ratios--accepting U.S. losses to kill enemy forces. Now what we want is not air superiority, but air dominance. The Dayton peace accords would not have occurred without the persuasive influence of U.S. air power--Air Force, Navy, and Marines.

We had air dominance in Desert Storm. The first USAF combat aircraft from the 1st Tactical Fighter Wing at Langley AFB--twenty-four F-15Cs arrived in Dhahran Saudi Arabia on 8 August--34 hours after receiving the deployment order, and were on combat air patrol alert four hours later. Within days the USAF force structure in Southwest Asia included three squadrons of air-to-air superiority fighters and eight squadrons of air-to-ground fighters. Before the end of August, the USMC had deployed 48 F/A-18s, 40 AV-8Bs, 10 A-6Es, 12 EA-6Bs, and six KC-130s, as well as 90 helicopters. These numbers increased during the next several weeks as additional attack aircraft, OV-10s and helicopters arrived in theater, to include 20 AV-8Bs embarked aboard amphibious ships. Two carrier battle groups with more than 100 fighter and attack aircraft and more than 10 surface combatant ships were directed to sail to the Gulf region on 2 August. Ultimately, the total naval forces deployed consisted of six Aircraft Carrier Battle Groups (CVBGs). During Phase I deployments, the United States deployed about 1,000 aircraft.

Up until the first day of the war, the Iraqi Air Force was generating up to 40 sorties a day. Within a few days, we shut down the Iraqi Air Force and achieved total air dominance. We had it, we liked it, and we want to keep it. And so our program is designed to maintain this air dominance that was achieved five years ago. More importantly, the consequence of having air dominance means that all the other things we are trying to do—at sea and on the land—are made possible because these operations are not going to be halted by opposing enemy air forces.

We are not looking for an equal or fair fight. If our deterrence fails and we must go to war with a future adversary, we want it to be unfair—we want the advantage to be wholly and completely on our side. Air dominance will leverage all the other operations we will be conducting. No U.S. soldier has been killed by an enemy aircraft in over 40 years--and we don't intend to relinquish that advantage.

Analytical Framework

Our TACAIR modernization plan flows from years of analysis, thought, and intensive debate. The analytical framework that supports this plan is both complex and rigorous. Each of the Services evaluate current and projected capabilities in the context of changing threats, policy guidance, and military strategy to identify deficiencies. Cost and performance trades are addressed to preserve an acceptable balance between risk and affordability. The Joint Requirements Oversight Council (JROC) has a role in shaping military requirements within the Department of Defense. These remarks will provide some background on the JROC itself, address its corresponding focus and processes and attempt to answer your specific questions on TACAIR.

JROC OVERVIEW

In 1994, General Shalikashvili directed the Vice Chairman to expand the charter of the Joint Requirements Oversight Council (JROC) to more fully support him in addressing his statutory responsibilities. The JROC correspondingly established its attendant Joint Warfighting Capability Assessment (JWCA) process, including greatly increased involvement by the Combatant Commanders and the Services. We believe that this process, now concluding its second year, has been successful in supporting the CJCS's military advice to the SECDEF.

Joint Warfare Capability Assessment Process

The JWCA process examines key relationships and interactions among warfighting capabilities to identify opportunities for improving joint effectiveness. Each JWCA team is composed of warfighting and functional area experts from the Joint Staff, Unified Commands, Services, OSD, Defense agencies, and others as required to conduct continuous assessments within their respective domains, as directed by the

JROC. The JWCA teams assess areas with capability deficiencies, unnecessary duplication, or exploitable technologies; as well as areas where we may prudently accept some risk. TACAIR recapitalization is one of the areas in which the JWCA process is heavily involved.

The resulting JWCA findings and recommendations are presented to the JROC for its consideration. Against this context, a goal of the JWCA process is to bring knowledge to the "four-star" military forum. The JROC is therefore instrumental in helping the Chairman explore alternatives through more extensive, open, and candid assessments of joint military capabilities and requirements by the Unified Commands, Services, and Joint Staff.

Requirements Process

The initial steps in approving and initiating aircraft development programs are the Service-developed Mission Area Analysis (MAA) and Mission Need Statement (MNS). MAA is an on-going activity for identifying deficiencies in existing warfighting capabilities or determining more effective means of performing assigned tasks within assigned mission areas. The analysis considers alternatives to new systems development. When no other alternative is available and a deficiency may lead to a major defense acquisition program, a MNS is developed. The MNS will identify and describe the mission deficiency; discuss the results of mission area analysis; describe why non-materiel changes (i.e., doctrine, tactics, training) are not adequate to correct the deficiency; identify possible materiel alternatives; and describe any key boundary conditions and operational environments that may impact satisfying the mission need.

For major acquisition programs, the Joint Requirements Oversight Council (JROC), in consultation with the Services and Combatant Commanders, review and validate the MNS. Additionally, the JROC validates a proposed systems Key Performance Parameters (KPPs) focusing on only the most essential to meet the mission need. These are forwarded to the Defense Acquisition Executive for inclusion in the

Acquisition Program Baseline which contains other important cost, schedule, and performance parameters. The VCJCS is the Chairman of the JROC and Vice Chairman of the DAB which creates the critical linkage between the requirements process and the acquisition process and ensures continuous monitoring and highlighting of Service and Combatant Commanders inputs.

Collectively and individually, the JROC assesses the Services' needs for tactical aircraft requirements. The following provides an overview of recent JROC assessment of individual aircraft acquisition programs.

F-22 Requirements

The JROC initially reviewed the F-22 program in 1991. At that time, the JROC validated the mission need and confirmed that the KPPs provided the capability to satisfy the mission need. The F-22 will replace the F-15 aircraft in the Air Superiority role to counter emerging threats worldwide. It will dominate the future air combat arena - flying over fifty percent more sorties, with forty per cent fewer personnel, and using fifty per cent less airlift than the F-15. The F-22 is designed to penetrate enemy airspace and achieve first look-shoot-kill capability through stealth, supercruise, and integrated avionics. The F-22 is the first weapon system designed from the outset with its principal focus on exploiting the ongoing information revolution while simultaneously denying an enemy the ability to do the same. While integrated avionics allow for dominant battlespace awareness, stealth denies crucial information to the enemy. Supercruise increases weapon performance, while reducing the enemy's ability to make effective use of the small amount of information they can gather.

F/A-18E/F Requirements

The JROC initially reviewed the F/A-18E/F program in January 1992. At that time, the JROC validated the mission need and confirmed that the KPPs provided the

capability to satisfy the mission need. The F/A-18E/F, operating with other Navy battlegroup assets, will provide a survivable, first-day of the war strike fighter capability that will meet the threat well into the first part of the 21st century. The F/A-18E/F is less expensive to develop than a new start program because it is an upgrade to the existing F/A-18 aircraft program. The F/A-18E/F is a multi-mission tactical aircraft designed to replace the F/A-18C/D, A-6, and F-14 aircraft as they reach the end of service life and retire. The F/A-18E/F is designed primarily to meet Navy fighter escort, interdiction, fleet air defense, and close air support requirements. Enhancements will include the increased range, increased carrier recovery payload, improved survivability, and system growth (volume, electrical, cooling) required for the F/A-18E/F to meet its strike fighter role.

When the JROC initially reviewed the F/A-18E/F program it included Marine Corps requirements. Recently, the Marine Corps indicated they do not intend to continue in the F/A-18E/F program. The Marine Corps has a standing requirement for a Short Take-off Vertical Landing (STOVL) Strike Fighter (SSF). In the early 1990s, the Marines were faced with the need to plan for replacing their F/A-18C/Ds and AV-8Bs in the outyears. The options were an SSF which could result from the Defense Advanced Research Projects Agency (DARPA) ASTOVL demonstration effort, or a combination of F/A-18E/Fs and either new or remanufactured AV-8Bs. At that same time, given the expectation that the DARPA ASTOVL effort would not lead to a viable SSF until the 2015 time frame, the USMC anticipated that the F/A-18E/F might constitute the only viable bridge to the SSF, and made the decision to join the F/A-18E/F program and remanufacture AV-8Bs to keep them operational.

By 1994, the JAST program became a reality and the possibility of acquiring a SSF significantly earlier than 2015 began to look promising. In 1995, the ASTOVL effort, under Congressional direction, was merged into the JAST program. It became apparent that an operational ASTOVL aircraft could become a reality in the 2008 timeframe. Procurement of the F/A-18E/F as a bridge to SSF would not be necessary because, existing F/A-18C/D and remanufactured AV-8Bs would allow the Marine Corps to

bridge the gap until the STOVL variant of Joint Strike Fighter (JSF) becomes operational. The Marine Corps believes their current plan to maintain F/A-18C/Ds and remanufacture AV-8Bs will meet their operational needs and will avoid significant modernization cost for DOD.

The JROC has initiated a special study to address this issue, and other related tactical aircraft issues. The plan is to develop recommendations that will be reviewed by the JROC, Service Chiefs, and CINCs in preparation for the F/A-18E/F production decision in the February 1997 timeframe.

Joint Strike Fighter Requirements

The JROC initially reviewed the JSF program in August 1995. At that time the JROC validated the Services' needs. Present Service plans call for the JSF to replace the F-16 and A-10 in the Air Force, replace the AV-8B and F-18 in the Marine Corps, and provide the Navy with a highly survivable first day strike aircraft to complement the F/A-18E/F. Because these earlier aircraft were bought at high annual rates during the 1970s, high JSF production levels will be needed to preclude a precipitous decline in tactical aviation forces for all the Services around 2005.

The 1993 Bottom Up Review (BUR) determined that a separate tactical aviation modernization programs by each Service was not affordable and canceled the Multi-Role Fighter (MRF) and Advanced Strike Aircraft (A/F-X) program. Acknowledging the need for the capability these canceled programs were to provide, the BUR initiated the Joint Advanced Strike Technology (JAST) effort to create the building blocks for affordable development of the next generation strike weapons system

The JSF program has emerged from the JAST effort. As a multi-mission sortie generator for the Air Force, JSF will replace the F-16 as it reaches the end of its service life beginning around FY 2005. The cancellation of the A-12 in 1991 left the Navy with the unfulfilled requirement for first-day-survivable, stand-alone, long range strike capability. The JSF will satisfy that requirement and complement the F/A-18E/F. The

Marine Corps has a long standing requirement to replace their TACAIR forces with a common aircraft that goes where Marines go, that is responsive to the ground commander, and light enough to operate from forward bases or amphibious ships. The JSF will meet Marine Corps needs as existing aircraft reach the end of their service life. The JSF program provides an affordable answer to multi-service requirements.

The first formal product of the JSF requirements definition process was the Joint Initial Requirements Document (JIRD) signed in August 1995 by all of the participating Services. The JWCAs reviewed the current TACAIR strategy, to include the JSF. Results were briefed to the JROC, the Joint Chiefs, and each of the CINCs. The conclusion of that extensive review resulted in JROC support for the current TACAIR strategy to include the direction and scope of the JSF program. The process recognized the potential for achieving an affordable solution to meet our joint warfighting needs.

In addition to individual aircraft acquisition programs, the JROC looks at the potential to integrate air-to-air and air-to-ground weapons on these platforms to ensure joint warfighting requirements are being met.

PRECISION GUIDED MUNITIONS

Precision Guided Munitions (PGMs) are an indispensable part of our Services TACAIR program and numerous steps are taken to avoid duplication and redundancies in PGM procurement. While drafting a MNS, the lead Service considers the potential for integrating a particular PGM on multiple platforms within that Service. As the JROC coordinates the MNS, other Services and the CINCs consider whether a particular PGM would suit their existing or projected needs and may recommend integrating that PGM on other platforms.

Following MNS validation, the Services consider the integration of a particular PGM on multiple platforms. This determination is made during ORD development. The ORD may stipulate commonality issues to ensure that the PGM is not platform-specific. Joint procurement programs would have a ORD that contain multiple Service

platform requirements. The Joint Air-to-Surface Standoff Missile (JASSM) program is an example of JROC oversight regarding PGM cost-performance trades and interoperability concerns.

Joint Air-to-Surface Standoff Missile

In August 1995, the JROC reviewed the JASSM MNS, validated the mission need, and determined affordability should be a major consideration. JROC concerns regarding affordability were provided to the DAB with a recommendation to focus efforts during the initial development phase of JASSM to minimize procurement and life cycle costs. In June 1996, the JROC again reviewed the JASSM program. The Services had embraced the concept of affordability and specified affordability guidelines within the operational requirements document. Also, the JROC observed that the Navy had included JASSM integration on the F/A-18E/F as a goal vice a requirement. In keeping with its interoperability of munitions policy, the JROC directed the ORD be modified to include the integration of the JASSM on the F/A-18E/F as a mandated requirement vice an optional goal. The Navy will revise their budget to reflect this change in program status. This ongoing oversight process, led by the JROC, with participation from the services, CINCs and JWCAs continues to produce positive results within the requirements arena.

As a result of JROC Oversight, future PGM acquisition programs, particularly those PGMs delivered by fixed-wing tactical aircraft, will be joint and interoperable. The Navy and the Air Force have jointly procured PGMs and are participating in joint development programs, including the Joint Direct Attack Munition (JDAM) and the Joint Stand-Off Weapon (JSOW). These jointly developed PGMs will be carried on multiple platforms in both Services. For example, JDAM will be carried by the Air Force's B-52, B-2, B- 1, F- 15, F- 16, F-22, and F-117, and the Navy's F/A-18, F-14, and AV-8B. Likewise, JSOW will be carried by the Air Force's B-1, B-52, F-15, and F-16, and the Navy's F/A-18 and A V-8B. Additionally, individual Services have procured PGMs

developed by the other Services. For example, the Navy and Marines purchased variants of the Air Force-developed Maverick and the laser-guided bombs. The Air Force bought the Navy-developed High-Speed Anti-Radiation Missile (HARM). One Air Force developed laser-guided bomb (GBU-10) is carried by six Air Force platforms and four Navy platforms, while the Navy developed HARM has been carried by two Navy platforms and two Air Force platforms. The goal is to integrate weapons on multiple platforms consistent with budgetary constraints and aircraft availability.

REQUIREMENTS SUMMARY

The JROC, through the JWCA process, special studies, and other ongoing assessments, directs numerous efforts which provide oversight to the requirements process. The JROC specifically focuses on affordability and cost-performance tradeoffs. The goal is the ferreting out of duplication, unnecessary redundancies, or inflated performance requirements, while ensuring this Nation maintains the capability for air dominance into the 21st Century.

DAB OVERVIEW

Chairman Weldon, Chairman Hunter, members of the subcommittees, some of your questions were directed at the Department's processes for ensuring that planned acquisition programs are executed within requested budgets. The Defense Acquisition Board (DAB) is the senior advisory group within the Department chartered (DoD 5000.2-R, Part 5.2) to oversee the DoD acquisition system. The present DAB evolved from its predecessor, the Joint Management Review Board (JMRB) and its predecessor, the Defense Systems Acquisition Review Council which was instituted by David Packard in 1972.

The DAB is currently composed of the USD(A&T) (Chair), the Vice Chairman of the Joint Chiefs of Staff (Vice Chair), the Principal Deputy USD(A&T), the Under

Secretary of Defense (Comptroller), the Assistant Secretary of Defense (Strategy and Requirements), the Director of Operational Test and Evaluation, the Director of Program Analysis and Evaluation, the Service Acquisition Executives, the Director of Defense Research and Engineering, the chair of the cognizant DAB Overarching Integrated Product Team (as appropriate, the Director of Strategic and Tactical Systems; the Deputy Under Secretary of Defense for Space; or the Deputy Assistant Secretary of Defense for Command, Control, Communications, and Intelligence Acquisition), the cognizant Program Executive Officer(s) and Program Manager(s), and the DAB Executive Secretary. The DAB Chairman is also routinely supported by senior staff advisors.

The DAB is responsible for advising the Defense Acquisition Executive (DAE) on the enforcement of policies and procedures governing the operations of the DoD acquisition system. This group reviews mission area deficiency needs validated by the Joint Requirements Oversight Council for the Milestone 0 decision to start a new acquisition program and possible concept exploration study efforts. A key function of the DAB is to perform reviews of the Department's major defense acquisition programs (MDAPs) at the Milestone I through Milestone III decision points. The DAB ensures that established DoD acquisition policy and program requirements are met before permission is given to proceed into the more advanced stages of development or production.

The MDAP programs are directed, funded efforts designed to provide a new or improved materiel capability in response to a validated mission area deficiency. Programs estimated to reach and exceed total expenditure thresholds of more than $355 million for research, development, test, and evaluation (RDT&E) or more than $2.135 billion in procurement in fiscal year 1996 constant dollars are designated as MDAPs. In addition, the Defense Acquisition Executive has the authority to designate any acquisition program as an MDAP.

ACQUISITION OVERSIGHT

We would like to describe in general terms the process used to oversee the acquisition system—policies, processes and programs. We believe the Department of Defense has the necessary oversight mechanisms in place to ensure a critical and independent review of all defense acquisition programs.

For major defense acquisition programs, the purpose of a DAB review is to give the Component Acquisition Executive, Program Executive Officer, Program Manager, and other senior officials management guidance and/or permission to proceed. There are two types of DAB reviews. The first type of review, a DAB Milestone Review, requires specific completed documentation and validation for the program to proceed. These requirements, actions, and responsibilities are defined in DoDD 5000.1 and DoD 5000.2-R. The second type of review, a DAB Program Review, can occur at anytime in the program's progression. A program review can be triggered for a host of reasons, including an Acquisition Program Baseline (APB) breach, a testing failure, a funding shortfall, or a change in mission requirements. The cognizant DAB Overarching Integrated Product Team (OIPT) leader is responsible for the DAB review agenda, presenting an overview of the program, summarizing the results from the overarching integrated team review, defining the issues, and offering acquisition decision memorandum recommendations.

The DoD 5000-series acquisition policy directives require certain supporting activities take place prior to a DAB milestone review (Milestones I through III). An appropriate series of Integrated Product Team (IPT) meetings are conducted to identify issues and define review requirements for the upcoming decision point. Next, a review by the OIPT is conducted and all issues and alternatives are clarified. A DAB Readiness Meeting (DRM) is held about one week following the OIPT review. The purpose of this meeting is to provide the cognizant OIPT leader with an opportunity to present the views and findings of the OIPT to the USD(A&T) and VCJCS. The USD(A&T), in turn,

may give further guidance to the cognizant OIPT leader in preparation for the upcoming DAB review.

The DAB meeting is usually scheduled one week after the DRM. Two days following the DAB meeting, the USD(A&T) signs an Acquisition Decision Memorandum (ADM) to the appropriate Component Acquisition Executive that contains guidance, direction, and approvals. Documentation requirements for non-milestone DAB program reviews are based on the issues to be addressed. For this type of review, documentation requirements do not exceed what is normally required for a milestone review. A similar set of oversight and review processes exist in each of the Services and acquisition components for non-major defense programs.

In addition, there are independent processes and checks and balances in place to assess threats, requirements, cost estimates and cost-operational effectiveness analyses. The Intelligence Community independently validates the threat in a System Threat Assessment Report (STAR) for each program before the appropriate DAB Milestone Review. The JROC oversees the requirements generation process and mission need determination to ensure that it is linked to our military strategy. The OSD Cost Analysis Improvement Group (CAIG) performs an independent cost estimate (ICE). The Director of Program Analysis and Evaluation conducts an independent assessment of the Analysis of Alternatives (AOAs) performed by the Services, and also assesses the affordability of the service programs annually through the Program Review Process. Independent oversight is one of the key elements in the Department's acquisition oversight process.

The Department's key decision-making bodies, the Defense Acquisition Board and Defense Resources Board, combine membership from both the acquisition and requirements communities to ensure a critical review from all perspectives is accomplished. This is an institutionalized, well-structured process.

ACTDs

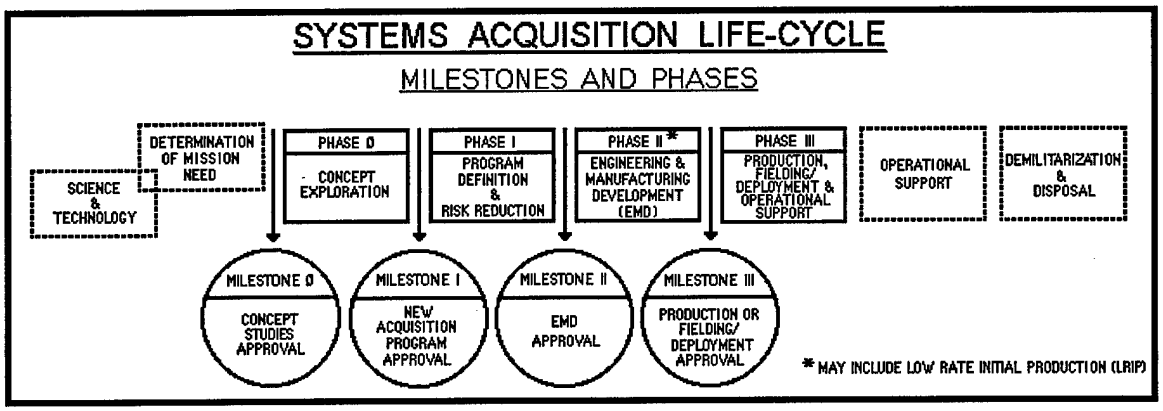
Advanced Concept Technology Demonstrations (ACTDs) are a pre-acquisition activity designed to determine if the selected programs have sufficient military utility to justify transition into acquisition. The oversight of ACTDs contains three main elements. First, the selection/approval process includes reviews by the senior technical representatives from the services and OSD from technology maturity and program viability perspectives and to ensure no unnecessary duplication. The candidates that pass that review are then reviewed and prioritized by the JROC with final approval by the USD(A&T).

Second, a management plan is prepared for each ACTD, defining technical and programmatic aspects of the program. This plan is approved by the Deputy Under Secretary of Defense for Advanced Technology, the Commander of the sponsoring operational user organization, the Acquisition Executives of the executing service or director of the executing agency, and senior representatives of all key participants. An Oversight Group that includes senior representatives of each of the same organizations, holds a semi-annual review to assess progress.

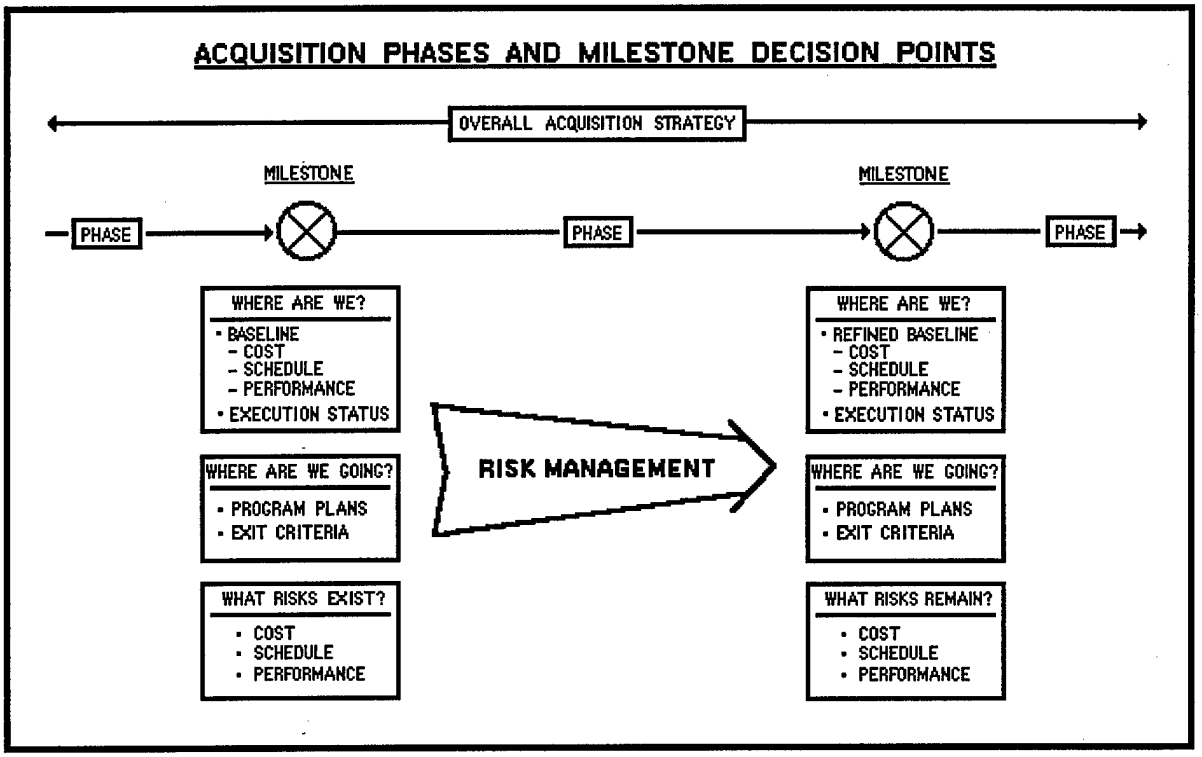
Third, the strategy for transition of an ACTD into acquisition is developed early in the ACTD, addressing such things as; procurement strategy, operational testing, life cycle costing, and supportability. A Transition Integrated Product Team is created at that time to review the strategy and to oversee the preparations for transition. Entry into acquisition occurs only if justified by the demonstrated military utility, in which case a formal program review is conducted to confirm readiness to transition. Entry into the acquisition process would typically occur either at the start of EMD or Low Rate Initial Production, depending on maturity of the design.

ACQUISITION PROCESS

The key features and characteristics of the defense acquisition process are the customary milestones and program phases. The Milestone Decision Authority (MDA) can tailor these milestones and phases based on a program's size, risk, or complexity. The four major milestone decision points and four phases, illustrated on the next page, typically provide a basis for comprehensive management and progressive decision making.



Phases and milestone decision points facilitate the orderly translation of broadly stated mission needs into system-specific performance requirements and a stable design that can be produced efficiently. Low Rate Initial Production (LRIP) may occur during Phase II if so decided at Milestone II (see DoD 5000.2R part 1.4.4.1).



As shown above, assessments are made of program execution status and plans for the next phase and the remainder of the program at each milestone decision point. The risks associated with the program and the adequacy of risk management planning are explicitly addressed. Additionally, the milestone decision authority approves program-specific results to be achieved prior to entering the next phase, called exit criteria.

The milestone decision authority also ensures that contracts are structured so that milestone decisions are made well before expenditure of funds on activities in subsequent phases. Contract options and phases are structured so that information on exit criteria completion is provided in time to support the acquisition review. The objective is to provide proper fiscal controls without delaying the acquisition decisions or contracting actions.

The plan for executing an acquisition program—the approach used to design, develop, and deploy a system through its life cycle—is the acquisition strategy. It is prepared by the program manager and submitted to the Milestone Decision Authority

for approval early in the program. The acquisition strategy documents the program manager's approach for minimizing the time and cost of satisfying an identified, validated need. It evolves through an iterative process and becomes increasingly more definitive as the program proceeds.

Depending on the selected acquisition strategy, combined or repeated milestone decision points and associated activities within the acquisition phase may be required. For example, in an evolutionary acquisition strategy, there may be multiple decision points, depending on the amount of functionality provided in each increment. In coordination with the Integrated Product Team members, the program manager may propose delegation of the incremental decision points. A second example is the use of Commercial-Off-The-Shelf (COTS) or Non-Developmental Item (NDI) products, requiring no custom changes, which may result in the consolidation of the acquisition "Program Definition and Risk Reduction" and the "Engineering and Manufacturing Development" phases. In that case, a Milestone II may not be required. Similar tailoring may be applicable to migration systems.

The DAB reviews the execution status of al major defense acquisition programs in each mission area. Collectively and individually, the DAB assesses the Department's progress in implementing acquisition reforms and commercial buying practices. The following five sections provide an overview of selected individual TACAIR aircraft and weapons programs.

F-22 Program

The F-22's low-observable characteristics, supersonic cruise speed, maneuverability, and advanced avionics will guarantee its effectiveness in the air superiority role. It will be capable of conducting air-to-ground operations, carrying two JDAMs internally with a future growth capability for external carriage of air-to-ground weapons. The first engineering and manufacturing development (E&MD) aircraft is scheduled to fly in May 1997. Tests of a full-scale pole model will begin this fall to

confirm the aircraft's low-observable signature qualities; software development and integration are continuing as well. Plans call for production deliveries of the first four of a planned total buy of 438 aircraft to begin in fiscal year 2001, with initial operational capability slated for fiscal year 2005.

The F-22 entered E&MD in 1991. The E&MD program consists of all required design activity needed to field the F-22 weapon system. This includes design, fabrication, and development testing of 13 flight test vehicles; design, fabrication, and development testing of 39 E&MD flight qualified engines; update of the Demonstration/Validation Avionics Flying Laboratory into a Flying Test Bed for use in developing and integrating the E&MD avionics suite (including the electronic warfare systems); and the design and development of the F-22 support and training systems. From the outset, the F-22 program has placed balanced emphasis on performance, survivability, reliability/maintainability, and affordability. The aircraft is meeting or exceeding all performance requirements. The first flight is scheduled for May 1997. Release of long lead production funding for the first production lot of four aircraft is scheduled for fiscal year 1998.

F-22 affordability initiatives date back to the initial acquisition strategy of the Advanced Tactical Fighter (ATF). During the Demonstration/Validation phase of the ATF program, the Air Force implemented many of the 1986 Packard Commission recommendations. Those initiatives included streamlining of the acquisition organization and procedures; the use of technology to reduce cost, which included a competitive prototyping strategy and early operational testing; and the balancing of cost and performance through early trade-offs on user requirements. This approach defined an executable, affordable program before committing to the increased costs associated with Engineering and Manufacturing Development.

When the F-22 successfully transitioned into Engineering and Manufacturing Development, the use of Integrated Product Teams was a centerpiece of the acquisition strategy. This approach employs multi-functional government-industry teams, all working towards a design that properly balances cost, schedule and performance. The

IPT approach has been shown to result in less redesign, scrap and rework than the traditional serial development process. The product is an affordable, highly effective and properly time phased weapon system.

Recent program efforts have continued to focus on streamlining to ensure affordability. Required military specifications and standards for the air vehicle pre-production verification (PPV) contract have been reduced by 85 percent and by 88 percent on the engine PPV contract. Contract data deliverables are expected to be reduced from 262 on the original E&MD air vehicle contract to 20 on the PPV and production contracts. Statement of work directions have been reduced from 147 pages for the original E&MD contract to less than 20 pages for follow on production. Program Office manning is projected to be reduced from the current 350 people to 191 in the year 2000.

The F-22 Program from its inception has led the way in implementing Lean Enterprise initiatives, beginning in E&MD and flowing forward into the production phase. The goal is to reduce costs, reduce delivery timelines, and improve quality in all areas. These initiatives will lead the way in reducing unnecessary oversight. These Lean Enterprise initiatives are geared towards reducing cycle times by 40 percent on the air vehicle and 60 percent on the engine. Other affordability initiatives include reducing security compartmented areas, migrating the advanced integrated avionics toward greater levels of open systems architecture, establishing a "factory to depot" support concept, using a common integrated Logistic Support Analysis database, using proven commercial practices whenever practical, and using commercial off-the-shelf software alternatives.

F/A-18 E/F

In 1987, the Secretary of Defense directed the Department of the Navy and Department of the Air Force to investigate derivatives of existing aircraft to maintain force structure in tactical aviation. Numerous studies conducted by the Navy looked at

the future of naval aviation, projected hostile threats, and the capabilities required to defeat those threats. Multi-mission capability in the aircraft of the future was a requirement which would help the Navy consolidate to a fewer number of more capable aircraft types onboard the aircraft carrier.

Those cost and operational effectiveness studies determined that an upgraded version of an existing airframe, either the F-14 Tomcat or F/A-18 Hornet, could meet the requirements. In 1991, an upgraded version of the F/A-18 Hornet was selected as the preferred solution. Secretary of Defense Cheney stated at the time that "the modernization of naval aviation must be bounded by affordability. In selecting the F/A-18E/F we considered not only performance and unit price, but also a host of other factors which impact on cost. In the final analysis, the F/A-18E/F was the clear choice." The F/A-18E/F Super Hornet was developed to provide increased range, increased payload recovery, increased payload flexibility, improved survivability, and renewed (15 plus years) growth potential.

During January of 1992, the JROC initially reviewed the F/A-18E/F program and recognized the Department of the Navy (DON) need to replace F/A-18C/D aircraft in a ground attack role. Increased survivability, mission radius, endurance, and weapon capacity were key elements to be addressed. At that time the Navy F/A-18E/F program included Marine Corps requirements. The JROC endorsed the need to pursue the F/A-18E/F development program and recommended to the DAB entry into the formal acquisition process at Milestone II.

The first E&MD model of the F/A-18 E/F made its initial flight on November 29, 1995. Three flight test aircraft were delivered to Patuxent River Naval Air Station on or ahead of schedule and are fully engaged in the flight test regime. To date, those three aircraft have completed over 100 test flights and flown over 168 hours. Over 84 percent through its engineering and manufacturing development phase, the E/F program is on cost, on schedule and 900 pounds below its weight specification. Furthermore, the aircraft is meeting or exceeding all of its requirements.

The $4.9 billion (base year 1990 dollars) F/A-18E/F E&MD effort will end in fiscal year 2000, and procurement of the first 12 aircraft will begin in fiscal year 1997. Initial operational capability is planned for fiscal year 2001. Recent modernization decisions will allow F/A-18 E/F production to reach the planned maximum rate one year earlier than previously anticipated.

The Navy evolved its plans for the future of its aviation forces based on a number of factors, among them the end of the Cold War and restricted procurement budgets. As a result, the F/A-18E/F has emerged as its principal tactical aircraft. By 2010 the carrier air wing will be composed of the F/A-18C and the F/A-18E/F. For future battle commanders, the F/A-18 E/F will provide such operational benefits as 80 percent more time on station, 35 percent more range, 52 percent more target coverage, 80 percent greater standoff for the battle group or 65 percent more penetration compared to the combat proven F/A-18 C. After 2010, the F/A-18E/F will be complemented by one squadron of Joint Strike Fighters in each carrier air wing.

On March 7th of this year, the F/A-18 Navy Industry Team was presented the first Department of Defense Excellence in Acquisition Award "in recognition of acquisition excellence and superior performance in the engineering and manufacturing development phase of the Navy's F/A-18E/F." The award also noted its successful first flight, and the fact that it was one month ahead of schedule, on cost, and met or exceeded performance requirements.

A primary focus for the F/A-18E/F E&MD program has been cost management and affordability. The program's survivability approach reflects a balance—reduced radar cross section, improved countermeasures, and reduced vulnerable area—for an 87 percent increase in survivability over the F/A-18C/D as demonstrated in analyses of future scenarios conducted for the A/F-X COEA.

During the design phase, manufacturing personnel were teamed with design engineers to form Integrated Product Teams (IPT) to ensure the parts can be easily manufactured. Advanced manufacturing techniques such as high speed machining enabled large parts to be milled from a single billet or forging versus sheet metal build-

up. As a result, parts, weight, and assembly hours have all been dramatically reduced. While the F/A-18E/F is 25 percent larger than the F/A-18C/D, it has 42 percent fewer parts.

The Navy and contractor have also formed an integrated flight test team composed of contractor and government test pilots, engineers, and technicians. Previously, the contractor would perform the development and initial testing and then turn it over to the Navy for validation. The Navy and its contractors are going through development and testing together, as a team. Three Navy and two contractor test pilots are flying the test aircraft at Patuxent River Naval Air Station. This integrated approach will decrease the testing time from four years to three years—a savings of time and money.

With the F/A-18E/F, the Navy is developing—at one-half to one-third the cost of a "start from scratch" program—a highly capable, carrier based tactical aircraft for the twenty-first century. The F/A-18E/F program satisfies the Navy's need for a longer range, more capable, more survivable strike fighter with growth capability to fill its flight decks well into the next century.

Joint Strike Fighter Program

The Joint Strike Fighter (JSF) Program is a product of the Bottom Up Review. In an effort to achieve an affordable long-term tactical aviation modernization plan, the Multirole Fighter and A/F-X Programs were canceled and the JSF Program, formerly the Joint Advanced Strike Technology (JAST) Program, was initiated. The Joint Strike Fighter's "common family of aircraft" approach is a new way of doing business to satisfy the strike warfare requirements of the Navy, Air Force and Marine Corps more affordably. The JSF concept is nothing like the approach taken on the former F-111 program in the late 1960s. Advances in the technology, design tools and manufacturing processes have significantly changed the manner in which aircraft are designed and built. Rather than force fitting a common aircraft design to the different requirements

of three Services, the JSF concept is using these advances in technology to build three highly common aircraft variants on a common production line.

The focus of the JSF Program is on affordability—reducing development, production and ownership cost. The program is accomplishing this by facilitating the Services' development of fully validated, affordable operational requirements, and lowering risk by investing in and demonstrating key leveraging technologies and operational concepts prior to the start of Engineering and Manufacturing Development (E&MD).

The "family of aircraft" concept allows a high degree of commonality, while satisfying unique service needs. JSF Concept Exploration Phase results underscored the possibility and benefit of commonality as a viable means of achieving a cost effective solution to maintaining the nation's combat superiority. Concept Development Phase efforts ratified the conclusion of the program's competing weapon system contractors that a family of aircraft can meet tri-service needs, with overall significant life cycle cost savings.

The JSF concept that has emerged from a continuing set of analyses will share an airframe substantially common among all users. It will have a single engine, based on analysis of the costs and benefits of 1- versus 2-engine propulsion. These studies showed that a single engine, if sufficiently powerful, could meet operational needs if it had an adequately reliable set of auxiliary equipment. The engine selected will be a derivative of an engine of the size developed for the F-22. The Marine Corps version will be capable of STOVL operations. Although this capability imposes special needs, the competing contractor teams have proposed satisfactory approaches that retain substantial commonality with the other two variants.

The JSF will be designed to carry two guided bombs and two medium-range air-to-air missiles internally (plus other weapons on wing-mounted stations when appropriate). Determination that the basic aircraft should have internal, rather than external, weapons carriage, was a key aspect of initial aircraft sizing. Extensive requirements analysis, using the department's standard aircraft survivability models,

led to a determination that future surface-to-air threats demanded comparatively low aircraft signature in initial wartime operations.

Although expected to be primarily a one-seat aircraft, some two-seat variants may be developed. Avionics are being defined now, and are expected to draw from work done for the F-22 and other programs. The program office has designed an increasingly detailed series of analyses in coming years to resolve the remaining questions concerning detail design and equipment configuration.

As a result of these studies, the JSF is expected to be considerably more capable than the Air Force F-16 and Marine Corps AV-8B. On the other hand, the JSF will be capable of meeting the Navy's needs at a much more affordable cost than previously planned successor systems, such as the now-canceled A-12 and A/F-X programs.

The JSF approach brings with it the potential cost benefits of a common Depot, commonly supported logistics trail, and increased joint service interoperability. The cost savings benefit of the tri-service JSF Program compared to separate Service stand-alone programs is significant—nearly $16 billion in development costs alone.

The JSF Program Office and the services are taking a realistic approach to commonality, by recognizing the need for intelligent compromises in establishment of requirements. The Services are working together on a realistic set of joint requirements. The contractors are conducting extensive studies to determine the appropriate level of commonality, and to identify areas where it makes sense to sacrifice commonality to meet unique Service needs. The truly joint structure of the JSF Program ensures balanced input from the three participating Services and a path to definition and achievement of affordable requirements.

Fiscal Year 1995 legislation merged the Defense Advanced Research Projects Agency (DARPA) Advanced Short Take-off and Vertical Landing (ASTOVL) program with the JSF Program. This action drew the United Kingdom (UK) Royal Navy into the program, extending a collaboration begun under the DARPA ASTOVL program. The UK is committing $200 million to the Concept Demonstration Phase of the JSF program in accordance with the terms of a Memorandum of Understanding (MOU) signed in

December 1995. Numerous other countries have expressed strong interest in the program, and increased foreign participation with financial contributions is highly likely.

The JSF has now been designated a Major Defense Acquisition Program and is entering its concept demonstration phase, in which full scale concept demonstration aircraft will be fabricated and flown to demonstrate the feasibility of tri-service commonality and reduce technical risk prior to commencement of E&MD in fiscal year 2001. Initial production of the JSF aircraft is anticipated in fiscal year 2005, with first deliveries to operational units in fiscal year 2008.

Present Department plans call for the JSF to replace the F-16 in the Air Force, replace the AV-8B and F/A-18 A/C/Ds for the Marine Corps, and provide the Navy with a highly survivable first day strike aircraft to complement the F/A-18E/F. For the UK Royal Navy, the JSF will replace their Sea Harriers. Because these earlier aircraft were built at comparatively high annual rates during the 1980s (up to 180 F-16s and 84 F/A-18s yearly, for example), JSF production levels of well over 150 aircraft per year will be needed in spite of the significant reductions that have been made in the aviation force structure in recent years. Without a major acquisition effort, there will be a precipitous decline in the tactical aviation forces of all the Services around fiscal year 2005.

This program is forging a new approach to weapon systems acquisition in order to reap affordability payoffs. In designing the program, the Department applied the recommendations voiced by the Packard and Carnegie Commissions and other experts on Acquisition Reform. This program is not business as usual—it is different in fundamental ways.

Program Integrated Product Teams of warfighters and technologists are using a disciplined strategy-to-task-to-technology process supported by an extensive underpinning of Modeling, Simulation and Analysis to facilitate requirements definition by the services. This process permits development of affordable requirements with maximum focus on jointness. The JSF Program has run three Major

Regional Contingency campaign level simulations. Over 90 representatives from government and industry participated in each of these exercises.

The JSF Program is conducting numerous Technology Maturation efforts in leveraging areas to reduce risk prior to entering E&MD to lower the life cycle cost. Demonstration results are made available to all industry participants. Achievement of affordability objectives for the prime contractors' preferred weapon system concepts depends on availability of these technologies. Examples of successful demonstrations to date include carrier suitability of tailless configurations; advanced 1000 pound class penetration warhead; virtual manufacturing validated by an F-15 real-world application; and demonstrations of shared apertures, Virtual Avionics Prototypes, and software common applications. Other demonstrations will quantify weight and cost savings. These include integrated aircraft subsystems; low-cost multi-function array; and innovations in structural materials, design and manufacturing processes. Two contractors will demonstrate commonality and modularity, STOVL hover and transition, and low speed handling qualities for a multi-service family of strike aircraft in the concept demonstration phase.

In the past, meeting the threat dictated an emphasis on performance, creating a culture in which cost and schedule were thought of as dependent variables in the acquisition process—performance levels were specified and the cost and schedule were adjusted to achieve that outcome. The JSF Program is employing the Cost-As-an-Independent-Variable (CAIV) approach to facilitate the establishment of an affordable, mission effective solution to the Services' needs. CAIV will address the links and sensitivities between mission effectiveness, system performance, and cost. The Services established top-level, aggressive unit flyaway goals, and the program provided them to the competing weapon systems contractors. During the upcoming Concept Demonstration Phase, program contractors will be required to continue to use costs (unit flyaway, Engineering and Manufacturing Development, and Operations and Support costs) as independent variables for trade studies.

The JSF Program continues its role as a leader in the area of DoD acquisition streamlining and reform and use of "paperless" processes. It encourages the use of commercial standards and best practices in weapon systems development; teaming with industry to create a common cost model to improve government and industry understanding of weapon system life cycle cost; and will minimize the number of contractor deliverables through on-line access to the contractors' management systems. The program continues to emphasize electronic processes as the standard means of communication. It has an extensive database which exploits the INTERNET for efficient, real-time dissemination of program information including information related to program procurement solicitations.

Now let us specifically address DoD oversight of the JSF Program. With the JSF recently designated as a Major Defense Acquisition Program, the DoD will begin providing internal and external reports, tailored in accordance with the acquisition streamlining concepts inherent in the new DoD regulations, just as the F/A-18E/F and F-22 Programs have been doing. The Department will specifically provide an RDT&E Selective Acquisition Report for the JSF Program to support the President's fiscal year 1998 Budget.

Although not previously designated as a Major Acquisition Program, oversight of the JSF program has not been lacking. The first formal product of the requirements definition process was the Joint Initial Requirements Document (JIRD), signed by all of the participating Services and briefed to the Joint Requirements Oversight Council (JROC) late last summer. The JROC endorsed the JSF process and "family of aircraft" strategy and emphasized the "the great potential towards achieving an affordable solution to meet our joint warfighting capability." Completion of the Services' Joint Operational Requirements Document (JORD) is anticipated in fiscal year 1999.

The JAST/JSF program has undergone intense scrutiny within the Department. In the past year alone, the key principals from the Defense Acquisition Board (DAB) have conducted three major reviews of the program. In late August 1995, the USD(A&T), along with several DAB members reviewed the program and each of the

contractor concepts, to include critical technologies and risk reduction plans. As a result of that review, the DAB members concluded that the "tri-service family of aircraft" approach was feasible. In preparation for Concept Demonstration Phase (CDP) draft request for proposal (RFP) release, a DAB review of the JSF demonstration program strategy and funding was held. The plan was approved and, after the Deputy Secretary of Defense was briefed, the draft RFP was released. Prior to the formal RFP release in March 1996, a DAB- review was again conducted of the acquisition plan to include CDP objectives, critical technologies, and risk reduction plans. This April, the DoD completed an additional review of the proposed funding for the Engineering and Manufacturing Development (E&MD) phase of the program. This review involved the DAB principals, supported by the Cost Analysis Improvement Group (CAIG). Another review by the Deputy Secretary of Defense followed. This resulted in revised guidance to the Services on funding for the JSF program.

The JSF Program is facilitating the Services' definition of their joint requirements, based on threat data supplied by the intelligence community. A "Continuous Cost and Operational Effectiveness Analysis (COEA)" will support this process. A series of interim COEAs will document key supporting analyses and rationale of weapon systems requirements and resulting attributes of the JSF that are addressed in the JIRD updates. An independent agency will prepare an Analysis of Alternatives (AOA) for Milestone II, conducting cost-benefit analyses of alternative aircraft programs and alternative JSF design features. The OSD Program Analysis & Evaluation office is designing this AOA now and will oversee its accomplishment. The AOA will draw on the extensive analytical work done by the JSF program office but develop independently several alternative approaches that would be available to the DAB at Milestone II to test the superiority of the proposed approach. The DAB and its supporting staff will thoroughly review all program documentation before progressing to the E&MD Phase of the program.

As we prepare to meet the technological, fiscal and threat demands of the next century, the Department of Defense clearly recognizes that we must optimize our

tactical air modernization, jointness and commonality to meet our affordability objectives . The Joint Strike Fighter will contribute to this goal.

JASSM Program

Upon termination of the Tri-Service Standoff Attack Missile program, the Air Force and the Navy continued to emphasize the need for a standoff weapon to attack high priority targets from outside the ranges of enemy area air defenses. The operational need is to provide both fighters and bombers the capability to strike heavily defended, high value targets in any campaign. The Joint Requirements Oversight Council (JROC) validated the JASSM Mission Need Statement August 1995. The JASSM Cost and Operational Effectiveness Analysis supported the Service approved Operational Requirements Document (ORD) in March 1996, and the JROC validated the JASSM Key Performance Parameters in June 1996.

The JASSM is an autonomous precision strike weapon that will attack both fixed and relocatable targets. Target types range from non-hardened above ground to hardened shallow buried, point targets. This joint program will design, develop, integrate, test, and produce missiles for launch from the B-52H, B-1B, B-2, F-15E, F-16C/D, F-117 and F/A-18C/D/E/F. The B-52H, F-16C/D (Block 50), and F/A-18E/F are the threshold platforms for JASSM. The JASSM will be integrated with the remainder of the objective aircraft as priority and funding availability dictate. Integration on the Joint Strike Fighter will be evaluated as it matures.

The JASSM was approved for entry into the Program Definition and Risk Reduction (PDRR) phase in June 1996. The approved Acquisition Strategy includes award of two contracts for the 24 month PDRR phase and down selection to one contractor to complete development in the Engineering and Manufacturing Development phase. The Required Assets Available date is third quarter fiscal year 2001. Requests for Proposal (RFPs) were issued in March 1996 and the source selection

culminated in the selection of Lockheed-Martin Integrated Systems and McDonnell Douglas Aerospace for the competitive PDRR phase.

The JASSM program incorporated a number of new acquisition techniques in addition to implementing many of the latest initiatives proposed by other programs. These initiatives accelerated the preparation for award process to approximately 9 1/2 months. The JASSM RFP and requirements were developed using streamlined processes. Both documents were developed in an unprecedented partnership with industry, the joint warfighters, and the Department of Defense acquisition community. The draft RFP was available on an electronic bulletin board throughout the development process. This allowed quick turn around (30 days) on the proposals. All competitors were provided the source selection standards as part of the RFP. The entire proposal was limited to 320 pages plus a 5 hour video tape presentation for the technical description. These factors allowed the source selection to be accomplished in under 45 days.

The ORD includes a central theme of affordability. The JASSM acquisition approach is based on precepts of Acquisition Reform and the concept of Cost as an Independent Variable (CAIV). JASSM is one of the flagship programs for CAIV implementation. Instead of mandating requirements supported by countless military specifications, the JASSM programs has only three key performance parameters. All other requirements are tradable to obtain a missile below the threshold average unit price of $700,000 per missile.

The contractors will perform robust cost-performance trade studies in developing the System Performance Specification and the lower-level specifications. The Cost-Performance IPT will play an integral role in assessing the cost-performance trade data and ensuring performance requirements do not drive cost in an unreasonable manner. The Milestone I Acquisition Decision Memorandum includes a requirement for the OSD CAIG to reassess program cost and average unit price prior to the Milestone II decision.

JDAM Program

Desert Storm demonstrated the need for more accurate delivery of munitions in adverse weather. The Joint Direct Attack Munition (JDAM), which evolved from that need, is a low-cost inertial guidance kit for inventory 1000-lb and 2000-lb bombs. The inertial guidance kit attaches to the bomb, is aided by the existing Global Positioning System (GPS) satellite signals, and uses tail fin movements to direct the bomb to the desired target. The JDAM program is an Air Force-lead joint program with the Navy. We plan to convert tens of thousands of "dumb" gravity bombs into "smart" bombs that can be accurately guided to precisely attack fixed, or relocatable, land and maritime targets under adverse weather conditions from medium and high altitudes. The JDAM units will be employed from the B-1, B-2, B-52, F-15, F-16, F/A-18, F-22, and the AV-8B aircraft.

To focus on lowering average unit cost and manufacturing risk, two 18-month contracts were awarded to Lockheed Martin and McDonnell Douglas in April 1994. In October 1995, the Department down-selected to a single contractor (McDonnell Douglas) to complete the development and operational testing. Safe separation tests of the 2000-lb variants have been performed on the F/A-18, F-16, B-52, B-1, and B-2 aircraft. Separation testing of the 1000-lb variant has begun on the F-16, as a surrogate for the F-22. We also recently began captive carriage testing of the guided test vehicles on the F-16 to test weapon functionality internal to JDAM. To date, JDAM flight testing has been 100% successful. The Low Rate Initial Production phase of the JDAM program is scheduled to begin in mid fiscal year 1997.

We started the program in 1993 the old way and estimated that we could get the cost of each JDAM modification kit down to about $42,000 by the time we converted our 40,000th unit. Soon after we set out on this path, Congress passed the Federal Acquisition Streamlining Act of 1994 and designated JDAM as an "acquisition pilot program." This Act granted relief—on a temporary basis for these pilot programs—from the statutory basis for many government unique requirements. At the same time,

the Department implemented regulatory reforms to provide increased flexibility for procuring commercial items and using commercial practices.

In 1993, the JDAM request for proposal contained a 137-page work statement and 87 military specifications. Last year, with our implementation of acquisition reform initiatives, we streamlined the statement of objectives to a 2-page performance specification—indicating what we wanted the system to do; not how the contractor should go about doing it. And this time, we had no requirement for any military unique specifications or standards.

Early this fiscal year, we signed a contract for JDAM kits that cost $18,000 each—starting with the very first units. Our average unit price per kit at the 40,000th unit is estimated to be $14,000. This is compared to our original cost goal of $42,000. When you are buying over 85,000 such kits, that amounts to a major savings—approximately $2.9 billion or about 50 percent of the original program cost.

The JDAM cost and time savings are primarily attributed to reduced Government specifications; early emphasis on manufacturing considerations including trade-off analyses within the design cycle; long-term relationships with the prime contractor and the subcontractors; and extensive use of Integrated Product Teams between the contractor and Government for the development and testing phases of the program.

The JDAM program is a prime example of acquisition reform success. Improved capability for our existing inventory bombs is essential. With JDAM, we will be fulfilling this critical need to our operational force earlier than expected and at a fraction of the original price.

AFFORDABILITY ASSESSMENT

The Defense Resources Board (DRB) is responsible, throughout the planning, programming and budgeting process, for ensuring the Defense Department is able to meet the challenges and threats of today and tomorrow. In accomplishing this goal, the

DRB is required to review each weapons system on its own merit and as part of an existing force structure to ensure the capability brought to the table by the individual system merits the resources being devoted to its procurement or modernization. Specifically, the DRB is chartered to review the overall defense program with a view toward balancing resources available against the needs of the services; the Commanders-in-Chief; and the Department as a whole.

The process begins with the annual service Program Objectives Memorandum (POM) submission. The competitive nature of the POM evaluation effort reflects the realities of funding available to DoD and the trade-offs which must be made between weapons systems and capabilities. The Service POMs are analyzed during the Program Review Process, and issues are developed by joint OSD/Joint Staff teams. These issues are often broad in nature, covering one or more Service, and one or more major acquisition program. The issues are analyzed in detail and alternatives are presented to a Program Review Group (PRG) which screens and refines the issues for presentation to the DRB.

The DRB is the decision making body for the Program Review which includes the Deputy Secretary of Defense, the Service Chiefs, the Under Secretary Of Defense for Acquisition and Technology, the Chairman of the Joint Chiefs of Staff and other senior defense officials who have a vested interest in balancing resources and capabilities. Ultimately, it is the function of the DRB to decide whether or not the Service POM's have correctly balanced available resources to achieve the most capable defense for the least cost and to ensure that the trade-offs between programs are mutually supportive and do not result in "holes" in the nation's shield.

As part of the Program Review, the DRB is often presented reviews of long-term affordability. In the case of tactical aviation, this long-term view has been presented annually to the DRB during the Program Review process. The issue of overall affordability of tactical aviation modernization was most recently addressed at a special Defense Resources Board (DRB) meeting convened by the Deputy Secretary in April 1996. The special DRB participants, composed of Service Chiefs, Service Secretaries,

Service Acquisition Executives, as well as the Director of Program Analysis and Evaluation and other principals from the Office of the Secretary of Defense, reviewed long-term tactical aviation modernization requirements and validated the current approach to proceed with the F-22, Joint Strike Fighter and the F-18E/F.

They found that overall aircraft investment was within historical norms and affordable within other Service priorities. The DRB members observed that during the early eighties aircraft investment was accorded approximately 30 percent of the Department's total investment budget (RDT&E and Procurement). Major expenditures were for bombers, tanker (mobility) aircraft and tactical aviation. During the current projection period, with the F-22, F-18 E/F and Joint Strike Fighter coming into the procurement phase of the development cycle, the aircraft investment percentage of the investment budget hovers a little below 25 percent. Clearly, tactical aviation is the leading investment resource, but sustainable since we have concluded our major buys of bomber and transport aircraft. This projection fits the historical norms of the late seventies and early eighties, when F-16, F-18 and F-15 aircraft were in production and TACAIR investment reached almost 25 percent of the total DOD investment dollars.

The plan implemented in the fiscal year 1997 President's Budget Request is being reviewed annually, and some of the details will undoubtedly change, but the plan is sound because it addresses the long-term core needs of the services and accomplishes the following three basic objectives: (1) sustains platform modernization through new aircraft development and procurement that supports long-term force structure goals and protects US qualitative advantages; (2) improves the accurate guided weapons carried by increasing standoff-range, enhancing all-weather capability and reducing costs; and (3) develops a dominant capability to exploit off-board, all-source intelligence information.

The 1995 Heavy Bomber Force Study revealed the leveraging influence of advanced accurately guided munitions. The difficult question of the most appropriate mix of weapons and delivery systems is being considered in an on-going Department

study, the Deep Attack/Weapons Mix Study (DAWMS). The study is evaluating aggregate requirements for deep strike weapons and their delivery systems for two nearly simultaneous major regional conflicts (MRCs), plus possible demands from lesser contingencies. It also is reviewing command, control, communications, computer, and intelligence (C4I) architectures and related systems that support the planning and execution of deep attack missions. The study, with expanded treatment of force structure considerations, is planned for completion by the end of calendar year 1996. Emerging results will be used in establishing procurement priorities and inventory goals for the Department's fiscal year 1998 budget request and the fiscal year 1998-2003 Future Years Defense Program.

SUMMARY

Chairman Weldon, Chairman Hunter, members of the subcommittees, thank you for the opportunity to discuss our plans for modernization of US tactical aviation forces. We have worked diligently to field forces capable of achieving air dominance—air superiority and the ability to strike any target from the air—within hours after the start of any future armed conflict.

Let us leave you with three thoughts. The first is that the Department has effective processes and independent checks and balances in place to oversee requirements generation, acquisition management and program affordability.

The second is that we believe the Department's overall tactical aircraft and weapons modernization plans are sound. The number of these platforms, the mix of weapons they will carry, and the off-board systems that will supply them with tactical intelligence are the subject of continuous, on-going affordability and cost-effectiveness studies.

Our third point is that these programs are executable. The requirements have been scrubbed. The threats are realistic. The cost estimates incorporate the

Department's new affordability and acquisition reform initiatives. And we have looked at the alternatives and performed thorough cost-operational effectiveness trades.

We have been, and will continue to be responsible stewards of the Nation's resources as we continue to maintaining a legacy of technological and warfighting supremacy at an affordable cost. We believe the President's fiscal year 1997 budget request is the most affordable approach for modernizing US tactical aviation forces and securing "air dominance" well into the 21st century. We thank you for this opportunity to appear before the Subcommittees and shall be happy to answer any questions you may have.