Entering SDD with an Affordable & Executable Program

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Communication & Coordination

- Comprehensive communication and coordination with OSD and ASN staff
- A full series of WIPT's and IIPT's leading up to formal OIPT's and a successful M.S. B DAB.
  - This included enough time to fully mature the Acquisition Strategy and transition from CAD to SDD.

Component Advanced Development Phase

- Component Advanced Development Phase was our keystone effort.
  - A 2 year effort with identical tasks and activities between competitors for SDD
  - Program was able to build, in close coordination with the Contractor, a comprehensive understanding for the following:
    - Evolution and careful upfront planning for Source Selection; including coordination with key principals on Source Selection Board and Source Selection Authority
    - Development of a comprehensive Award Fee Plan developed for select incentivations tailored for the Prime Contractor
    - Systems Architecture Definition
    - ORD performance requirements refinement -- CAD allowed opportunities for Industry to provide constructive feedback of ORD realism in context of proposed concepts.

(cont.)

Component Advanced Development Phase

- Performance Based Systems Specification (PBSS) development - allowed enough time to develop a document balanced between pure SOO type performance vs. detailed performance requirements.
- Cost Analysis Requirements - CARD had a "lead/lag" relationship with Risk Management as the concept of design evolved in CAD. CARD effort was dynamic over time in CAD
- Comprehensive Risk Reduction Identification and mitigation steps - facilitated an avenue of communication between competing contractors and the government
- T&E Strategy
- Organization -- CAD allowed the Navy to position it's people with the right level of counterpart construct in accordance to Prime Contractor organizations. Had enough time to position the right team in place

- CAD work on PBSS development allowed program to enter Systems Requirements Review (SRR) only 3 months after Contract Award.

- Very close working relations were built with the CAIG. This included several working level meetings and visits by the CAIG to Prime Contractor sites for full program understanding.

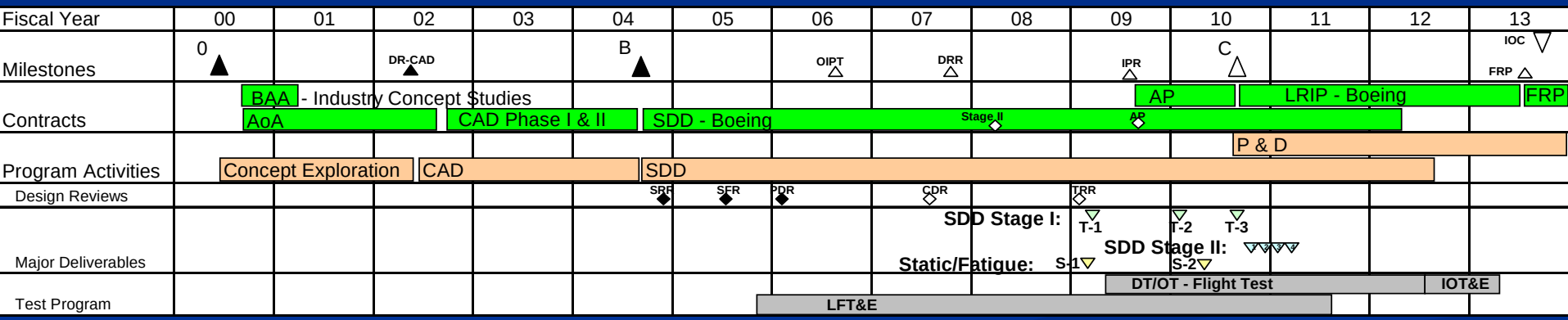
- Close interaction between Navy Class Desk and OSD AT&L SE personnel to fully define a comprehensive SEMP.
- Utilization of the NAVAIR functional competency Independent Reviews (NAR's) including reviews of program acquisition strategy.

Integrated Baseline Review (IBR)

done with six months of contract award

- Incremental IBRs in a "rolling wave" fashion to systematically open up planning packages to identify detailed work content and ensure budget, manpower, schedule, and event relationships match work required.
- Lessons learned: Limited resources on the Contractor makes it difficult to support near simultaneous events (i.e., for P-8A we held SRR and IBR within 3 months of one another -- forced a Phase II IBR in mid Feb 2005)
- Quarterly Award Fee Barometer Briefs with the contractor <u>in full alignment</u> with IPAR and CPAR.

P-8A Schedule from CAD to SDD



CH-53K Sole Source

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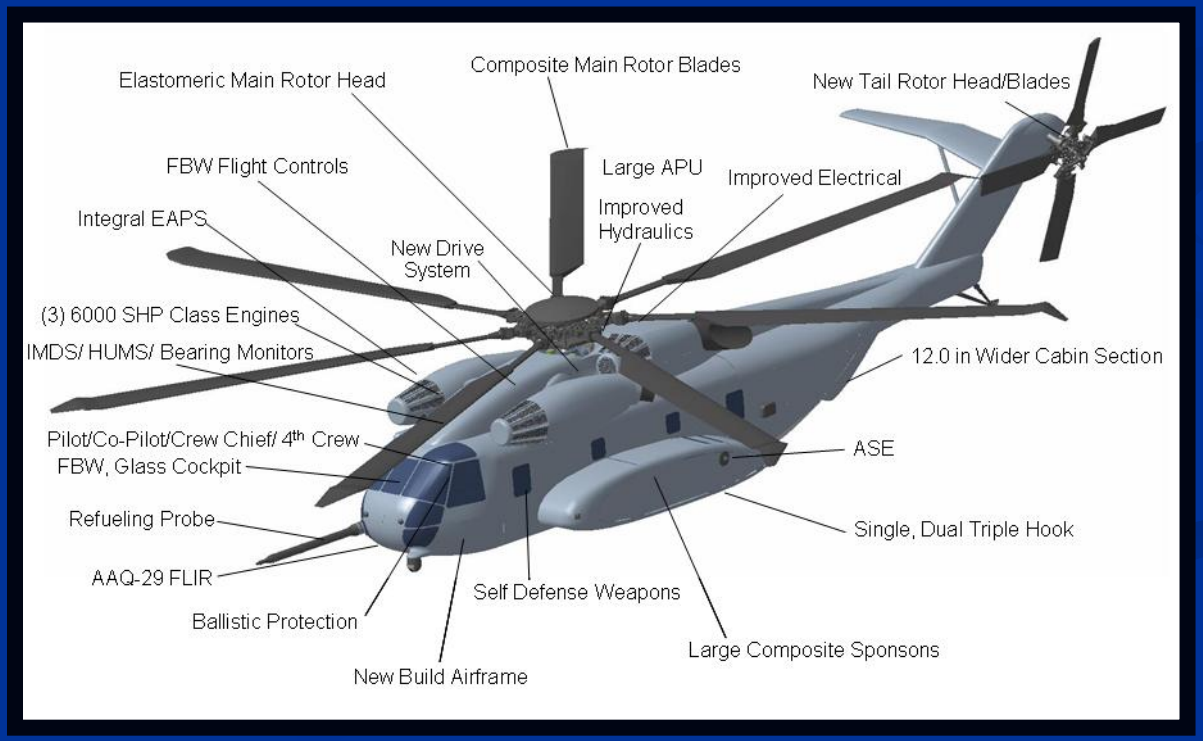
Robust Analysis of Alternatives

- Recommended design update on existing platform to capitalize on existing capabilities, lessons learned
- Recommended new-build production to preclude remanufacturing cost and schedule risks



Integrated Baseline Review (IBR)

done with six months of contract award

- Risk reduction studies allowed confidence in technical baseline
- First IBR of Prime effort only
- Incremental IBRs when major subs are onboard (IBR phase 2 this summer)

Acquisition Strategy & Systems Engineering approach

- Scheduled to realistic budget profile
  - Risk Reduction Studies with Contractor
- Established requirements traceability
  - Identified and maximized use of mature technologies
  - Embraced Modular Open Systems Approach (MOSA)
  - Leveraged commonality
  - Balanced test asset numbers and T&E risk

Independent Reviews & Verifications

- NAVAIR Non-Advocate Review
- Independent Assessment with Booz-Allen Hamilton
- Business Case Analysis with Whitney, Bradley, and Brown Inc.
  - Assessed aircraft development strategy – block, single step etc
- PM/A-4.2 estimate vice OSD's Cost Analysis Improvement Group (CAIG)
  - Within 10%
  - Close enough to use Navy estimate
  - Program schedule described as low risk by CAIG

Cost Plus Award Fee (CPAF) contract

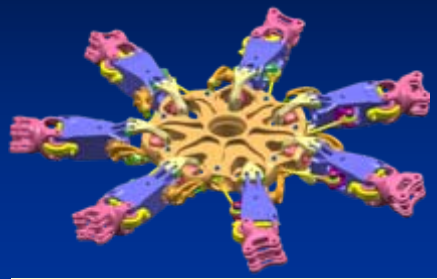
for System Development and Demonstration (SDD)

- Award Fee Plan (AFP) structured with heavy emphasis on cost reduction, control
  - Earned Value Management (EVM) cost and schedule performance criteria
  - Includes emphasis on Schedule Risk Assessments
    - knowledge/discipline of Critical Path Management
- AFP has limited Roll-Over
  - Not automatic -- used to motivate performance in a specified area providing benefit to the government
- Promote communications/situational awareness: Quarterly Barometer briefs with the contract
- Ensured strategy-to-execution integrity with subcontracting plan that includes Government review of major subsystem criteria before Prime solicitation

Meeting the Requirements

Main Rotor Blade

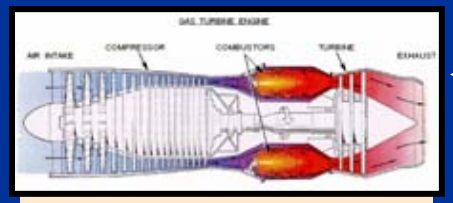
Joint Interoperable Modern Cockpit



Main Rotorhead

Key Performance Parameters

- Net Ready
- Range & Payload
- Mission Reliability
- Logistics Footprint
- Sortie Generation Rate / Average Sortie Duration
- Survivability
- Force Protection

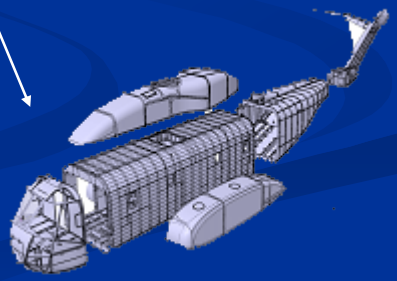


Modern Engine System

Main Rotor Gearbox

Survivability Enhancements

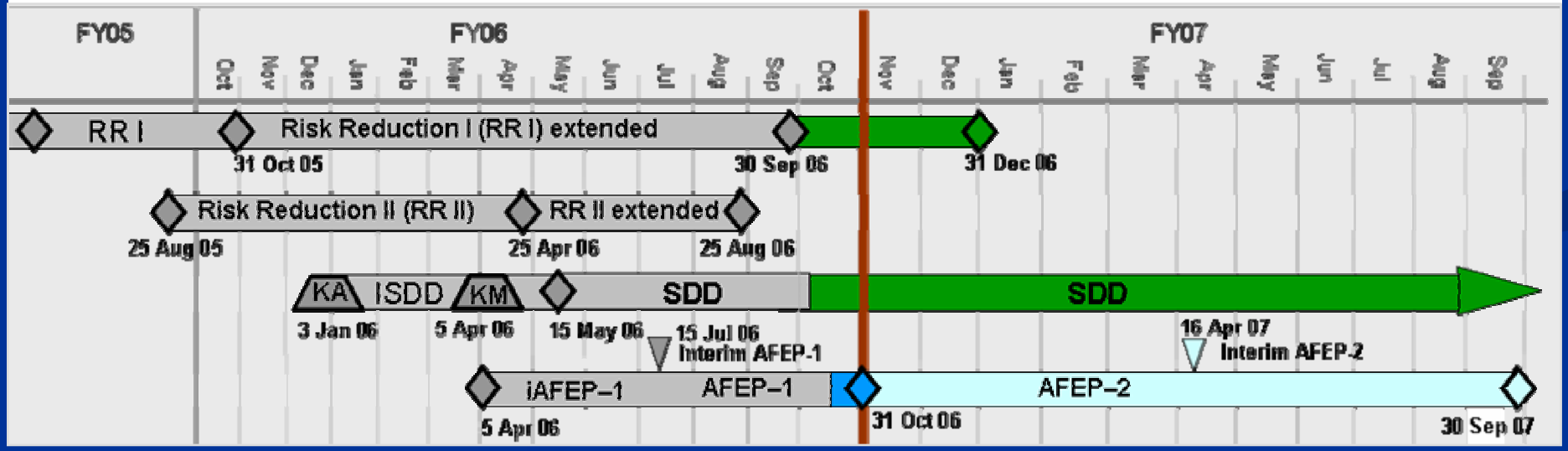
Force Protection



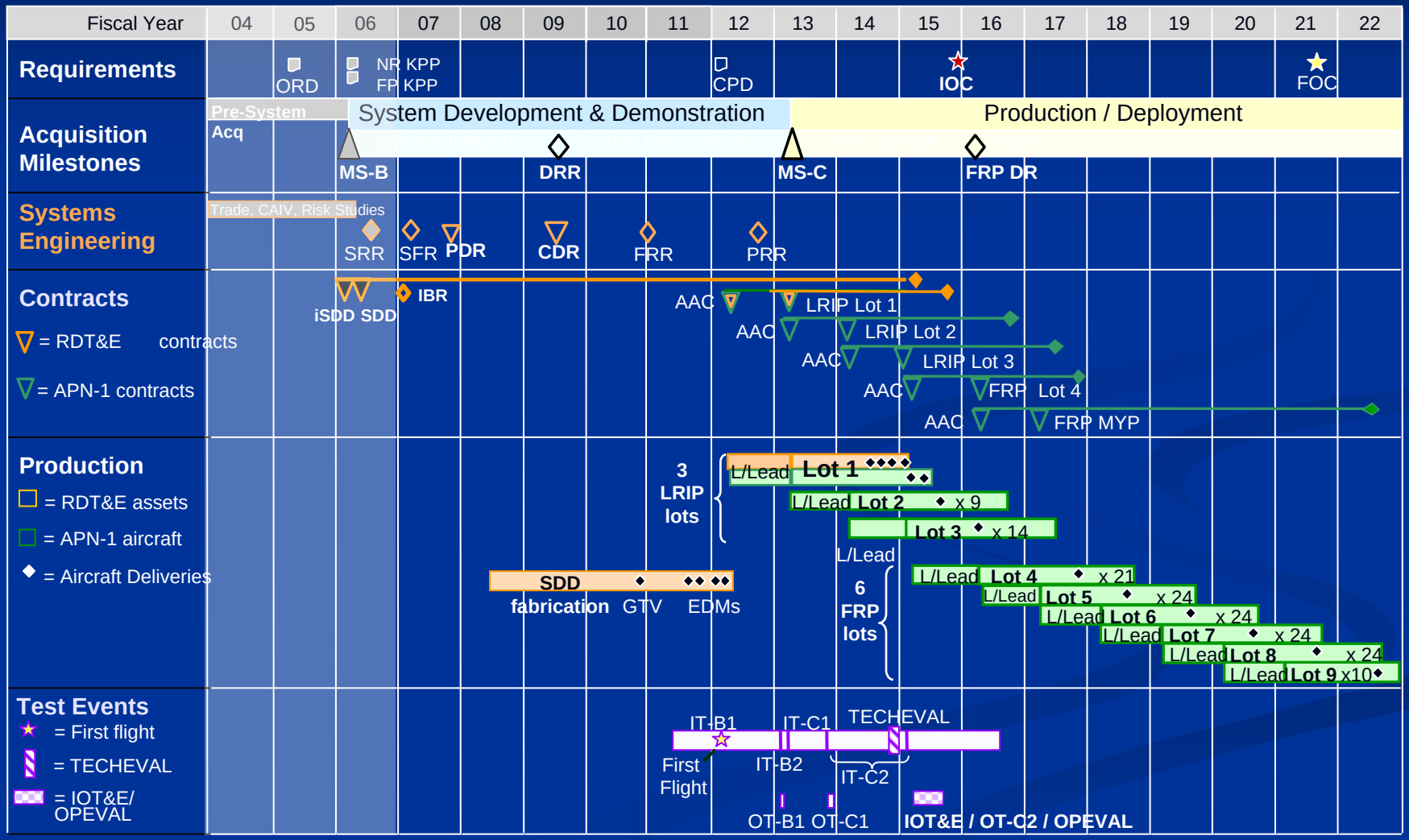
Structure

CH-53K Contract Strategy

Sole Source to Sikorsky					
Phase of Contract	**Period of Performance**	**Activity**	**Funding**	**Contract Type**	**Comments**
Risk Reduction I	**Dec 04 – Dec 06**	■ Risk Reduction Activities	$34M	T&M→ CPFF	Extended to 31 Dec 06
Risk Reduction II	**Aug 05 – Aug 06**	■ Risk Reduction Activities	$46M	CPFF	Complete 25 Aug 06
Initial System Development & Demonstration (ISDD) / SDD	**Jan 06 – Dec 15** CLIN 0001 Jan 06 – Apr 08 CLIN 0004 Apr 06 – Dec 15	■ Initial design material (Blade, Gearbox, and others) ■ Preliminary design and subcontractor tasks ■ SDD ■ System Integration Labs ■ 1 Ground Test Vehicle ■ 4 Engineering Development Models	$3B	CPAF	■ Award Fee Evaluation Period (AFEP) 1 underway ■ Criteria for AFEP-2 issued



CH-53K Integrated Program Schedule



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KPPs

Key Performance Parameters	Threshold	Objective	Units	Better	Status	Method	Margin in Units	Trend
Mission Reliability @ 2.25 flight hours Average Sortie Duration (ASD)	89.0%	90.0%	%	▲	93.3%	Model (AMM**)	4.3%	TBD ***
Sortie Generation Rate @ 2.25 ASD	2.6	N/A	# Sorties per Aircraft per Day	▲	3.6	Model (AMM**)	1.0	TBD ***
Mission Payload	27,000	30,000	LB	▲	27,144	Estimated	144	TBD ***
Interoperability (% Critical/% All)	100.0%	100.0%	%	▲	TBD	Estimated	TBD	TBD
Logistics Footprint (Threshold < CH-53E, Objective < 90% CH-53E)								
Weight	103,404	93,063	LB	▼	94,159	Estimated (Parametric)	9,245	TBD ***
Cube	16,728	15,055	FT^3	▼	16,356	Estimated (Parametric)	372	TBD ***
Survivability (Rationalized)*	1.00	N/A	Ratio	▲	TBD	Model (KOVART)	TBD	TBD
Force Protection (Rationalized)*	1.00	1.00	Ratio	▲	TBD	Model (KOVART)	TBD	TBD

* Rationalized unclassified data - see classified appendix of AVS for actual values
** Aircraft Maintenance Model (AIR 4.10)
*** First report, no trend established