Navy Unmanned Combat Air System Demonstration

Presentation to

Precision Strike Association

25-26 Jul 2006

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NAVAIR

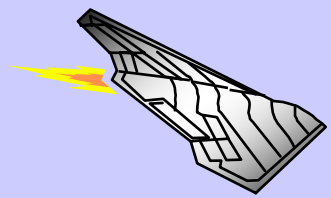
Outline

- **Introduction**
- **Navy UCAS Evolution**
- **Carrier Demonstration (UCAS-D)**
- **UCAS-D Schedule**
- **Summary**

Introduction

- **Program Goals:**
  - **Demonstrate Carrier Suitability of Persistent ISR Relevant, Unmanned, LO-Planform Air Vehicle**
  - **Mature Critical Technologies Prior to Potential Milestone Decision**
  - **Maintain Competitive Environment**

UCAS-D System Not Intended For Operational Use



UCAS Evolution

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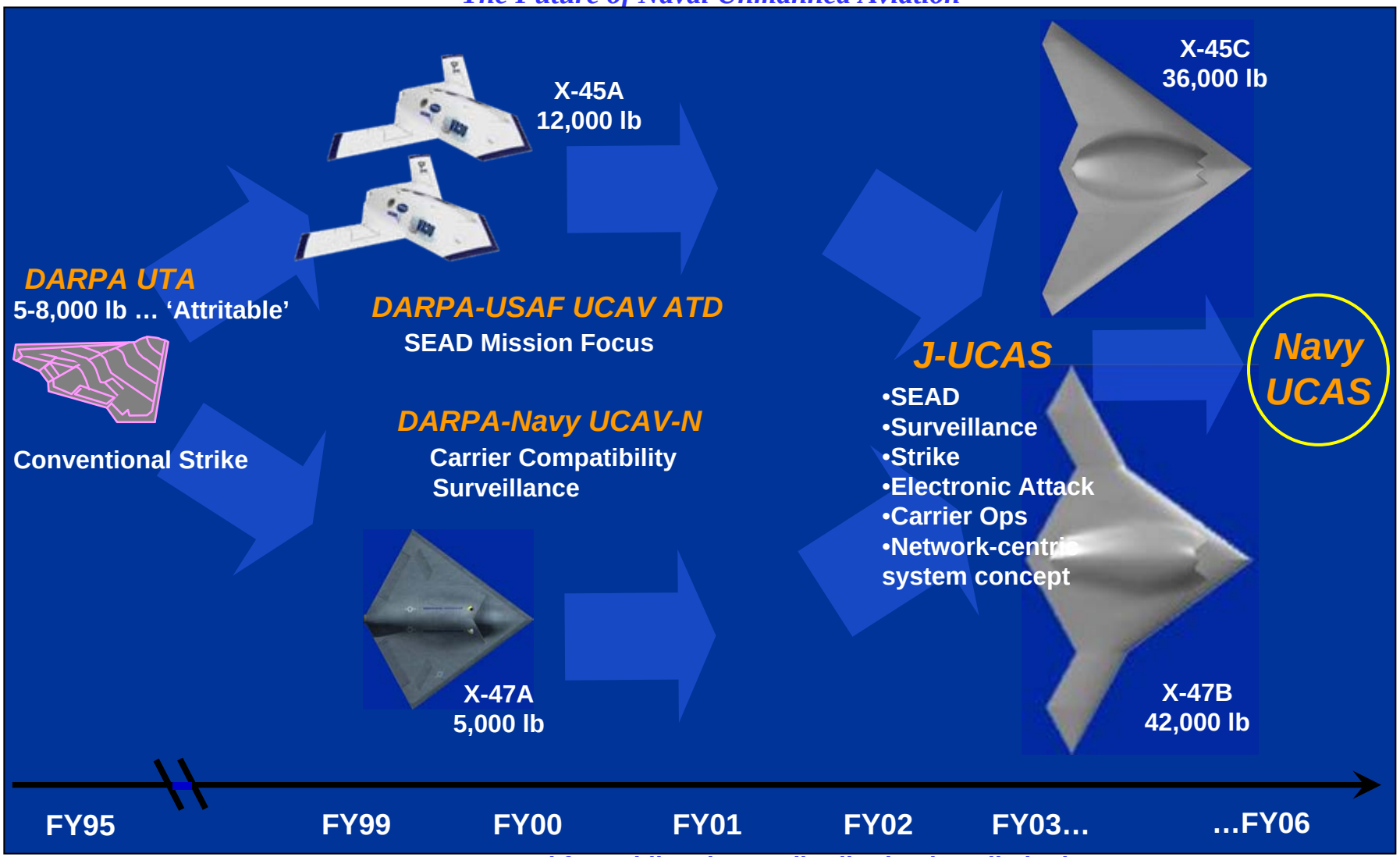

Navy UCAS Development Roadmap

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Transition

Technology Development

IOC

Spiral

UCAS CV Demo (UCAS-D)

Attributes:
- CV Suitable
- LO Planform
- Relevant to CV ISR Mission

Possible Attributes:
- CV Suitable
- Persistent ISR
- Some Strike Capability
- Aerial Refueling
- Survivable

Improved ISR/Strike Capability, Persistence, Survivability

2006 2012 2018 2023+

Examples of UCAS Critical Technologies

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- **Propulsion Technologies**
  - Low Specific Fuel Consumption and High Specific Thrust Core
  - Integrated power generation
  - Thermal management system
  - Active inlet flow control
- **Command & Control Technologies**
  - GIG interface
  - Autonomous operations
- **Survivability Technologies**
  - Material supportability
  - Sensor integration
- **AV Structure Technologies**
  - Material weight/strength
  - Planform optimization
  - Manufacturing
- **CV Integration Technologies**
  - Deck Handling
  - CV operations

The Technology Maturation Assessment and studies and analyses by Johns Hopkins University APL will better define this list.

UCAS-D Scope

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- **Objective**
  - **Carrier Suitability of Unmanned, Low Observable Planform UAS**
- **Scope**
  - **Carrier Control Area Operations**
  - **Launch Performance**
  - **Arrested Landing Performance Including Approach, Waveoff and Bolter**
  - **Deck Operations**
  - **Mission Control Segment (MCS) CV Integration**
  - **UCAS interface to CV**
    - » **Primary Flight Control (PriFly), Landing Signal Officer (LSO), and Carrier Air Traffic Control Center (CATCC)**

Maturity Challenge

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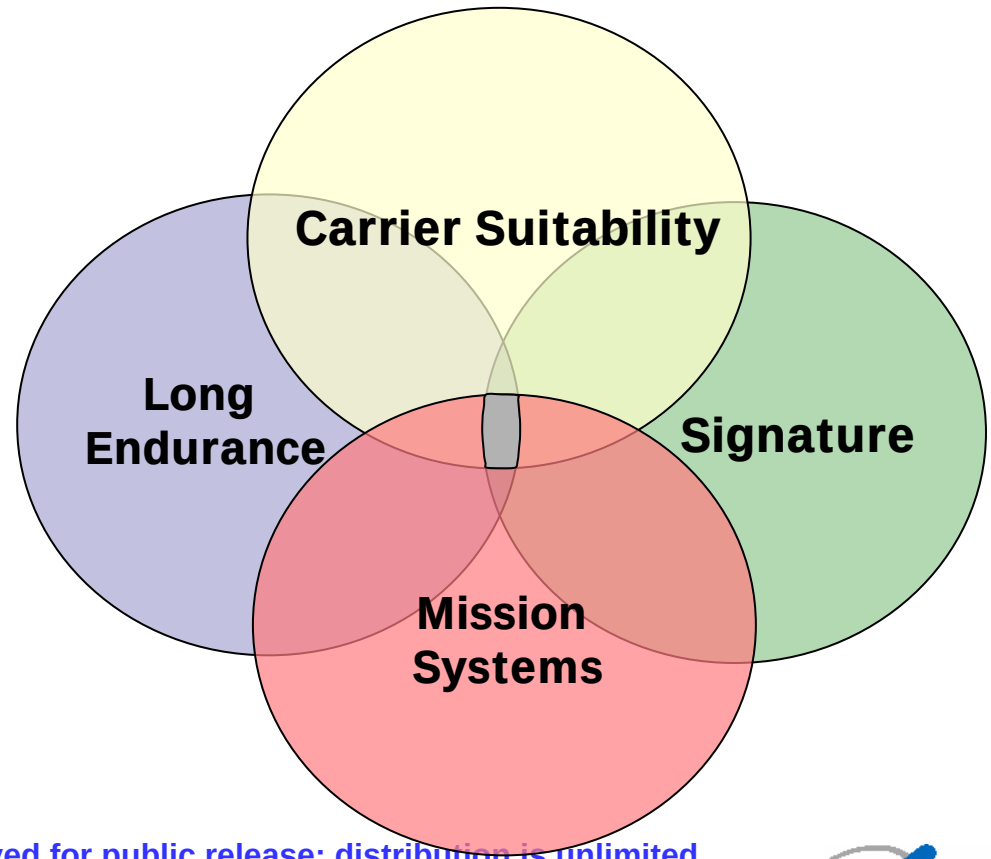
Technology Does Not exist today to make all four circles intersect

TRL 6 Definition:

- Representative model or prototype system tested in a relevant environment.
- Represents a major step up in a technology's demonstrated readiness
- Examples include testing a prototype in a high-fidelity laboratory environment or in simulated operational environment



UCAS Overview & Transition

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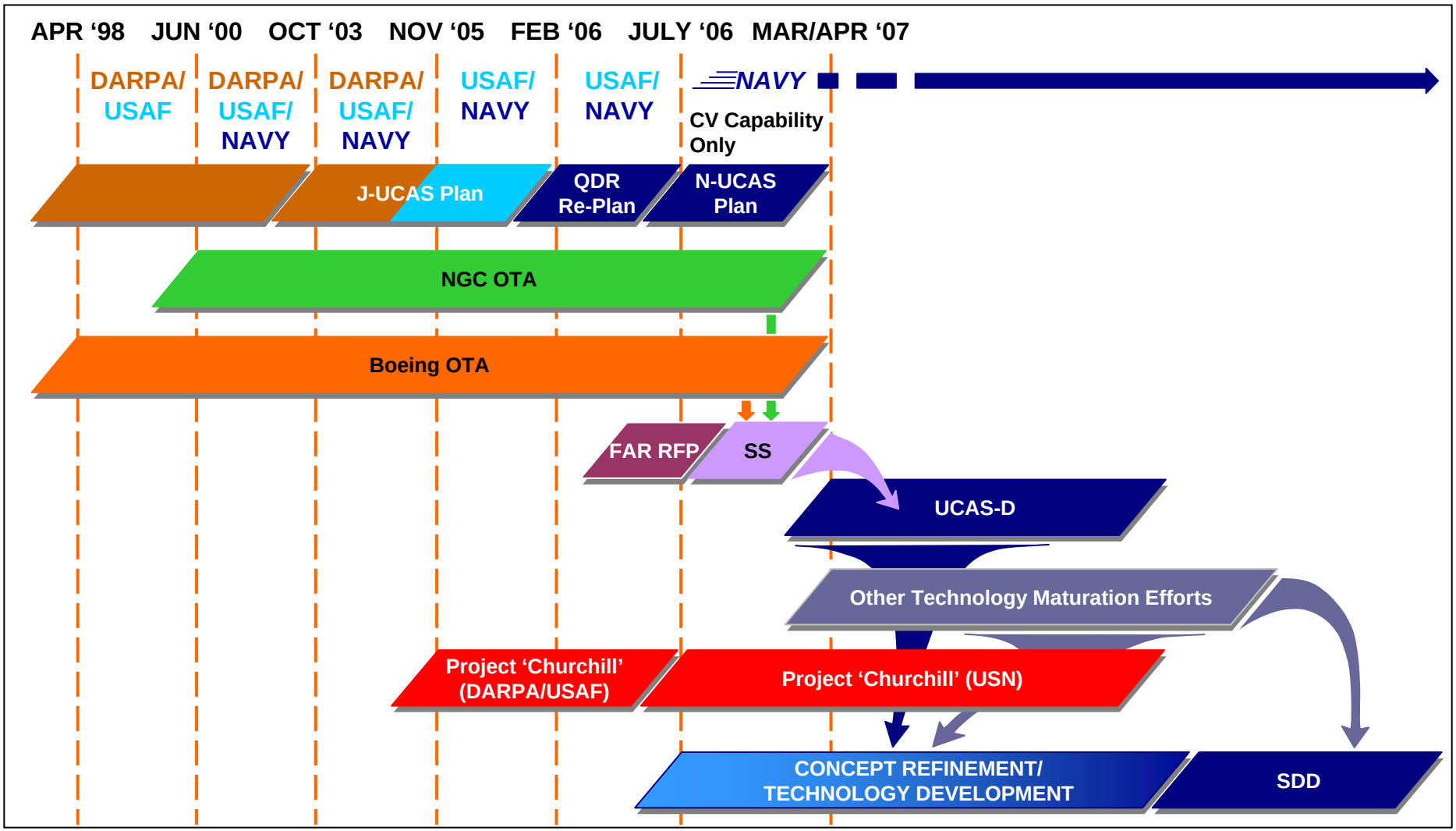

CV Demo Schedule

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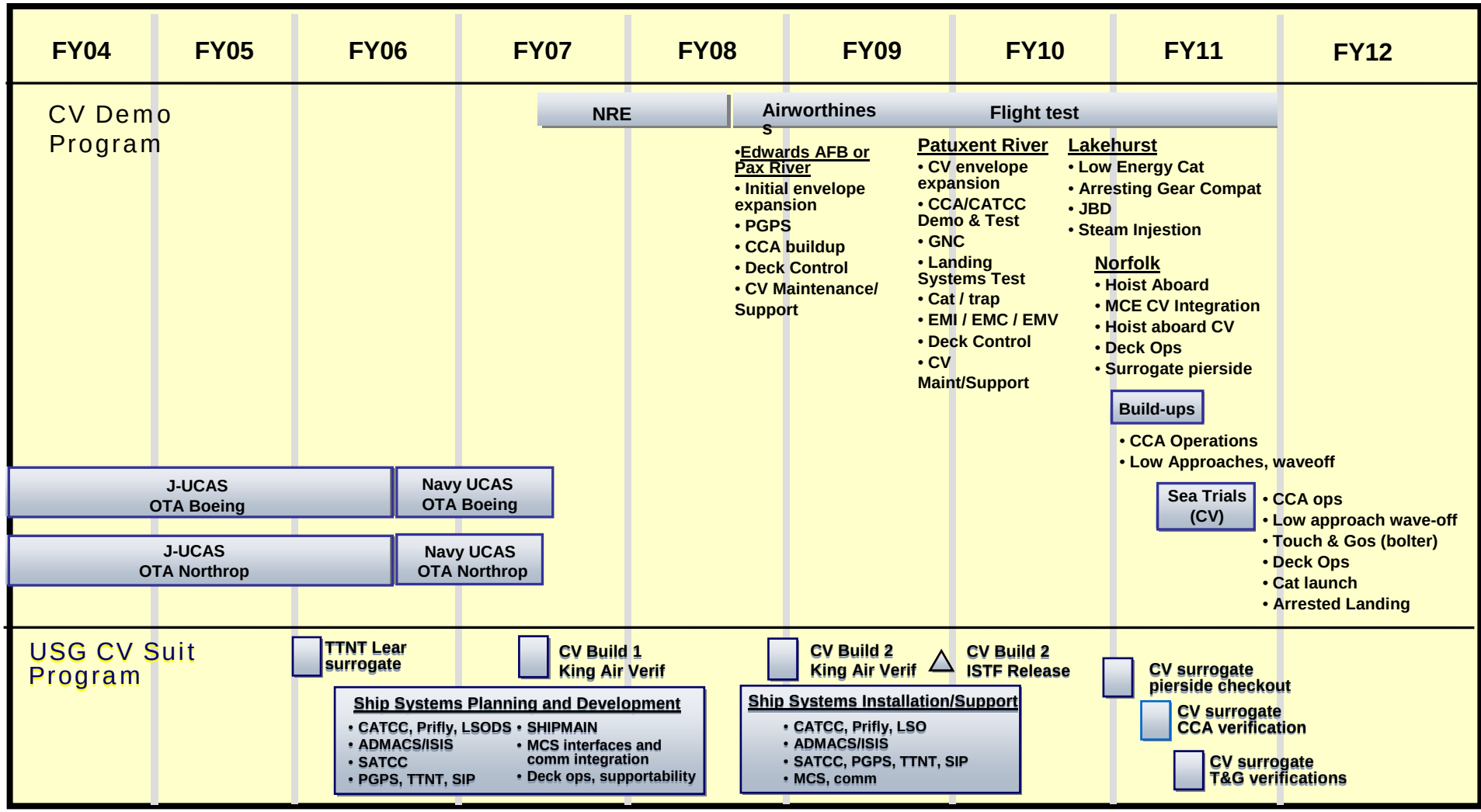

Summary

- **Planning for UCAS-D Phase on track**
- **Focused on demonstrating the technical feasibility of operating a tailless, unmanned, LO planform aboard a carrier**
- **Potential follow-on efforts will be the result of detailed planning and available resources**