NAVAIR History

1911 – First Navy aircraft purchased from the Glenn Curtiss company of Hammondsport, NY

1921 – Bureau of Aeronautics was created. Prior to that, the ownership of all aircraft was distributed across the Navy

At the start of World War II, the Navy had 1,800 combat aircraft. By the end of the war, the Navy had 41,000 total aircraft.

1959 – BUAER merged with Bureau of Ordnance (BUORD) to form Bureau of Naval Weapons (BUWEPS)

1966 – Naval Air Systems Command (NAVAIRSYSCOM) established

1985 – NAVAIR now reports directly to Chief of Naval Operations (CNO)

1990’s – NAVAIRSYSCOM moves to Patuxent River Naval Air Station
NAVAIR’s Role in Naval Aviation

- Develop, acquire and support aircraft, weapons and related systems which can be operated and sustained at sea
- Provide analysis and decision support for cost / schedule / performance trades and investment decisions
- Increase Navy and Marine Corps capability, readiness and affordability in a joint / coalition environment

Our capabilities support the unique mission of naval aviation
NAVAIR Commander’s Intent

Three Priorities: MISSION – PEOPLE – RELATIONSHIPS

**Shared Identity** – We are Providers. We enable Readiness and field Capabilities that meet Fleet requirements.

**Shared Vision** – Taking readiness and speed to new levels of performance will ensure the Fleet’s success.

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Strategic Imperatives: Increase Readiness and Speed

Focus on SPEED with emphasis on safety, quality and reliability

  - Agility, standard work, empowerment
  - Digital data and decision support tools

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Roles & Responsibilities:

- Commands (NAWCs, FRCs) and PEOs *own & execute*; Competencies *support*
- Team leads are empowered to LEAD

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*NAVAIR’s success is measured by program / Fleet success – We share ownership of their performance and outcomes.*
CNO and CMC Alignment

“We have got to move faster. We have got to learn faster. We’ve got to adjust our acquisition systems to adopt that technology faster… I need an acquisition system that will allow for quick technology refreshes to continuously improve performance, rather than relying on massive game changers every 20 years.”

– CNO John Richardson

“We must continue to improve our readiness for today’s fight, while at the same time ensuring we remain relevant for the conflicts we know will come in the future.”

– CMC Robert Neller

“Message from the Commandant”
### Strategy Alignment

<table>
<thead>
<tr>
<th>CNO</th>
<th>NAVAIR</th>
<th>CMC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengthen Naval Power</strong>&lt;br&gt;Ready to operate and fight, and advance information warfare capabilities</td>
<td><strong>Increase Readiness, Affordability and Speed</strong>&lt;br&gt;Ready to fight tonight – Capabilities and capacity to win the future</td>
<td><strong>Readiness</strong>&lt;br&gt;Expand readiness efforts, and experiment and test new concepts and capabilities</td>
</tr>
<tr>
<td><strong>High Velocity Learning at All Levels</strong>&lt;br&gt;Accelerate learning, innovation and creativity, and expand learning-centered technologies</td>
<td><strong>Learning, Knowledge Management</strong>&lt;br&gt;Encourage creativity, innovation, hands-on learning through collaboration tools</td>
<td><strong>Training and Simulation</strong>&lt;br&gt;Ensure business models and operating concepts are relevant and adaptive, and focus on innovation and learning</td>
</tr>
<tr>
<td><strong>Strengthen our Navy Team for the Future</strong>&lt;br&gt;Accelerate Sailor 2025 efforts and strengthen leadership development programs</td>
<td><strong>Agile, Adaptive Workforce</strong>&lt;br&gt;Smaller, flexible and empowered teams that take well understood, balanced risks, and develop leaders at all levels</td>
<td><strong>People</strong>&lt;br&gt;Ensure our workforce is the right size with the right skill sets, and focus on new-age training/education continuum</td>
</tr>
<tr>
<td><strong>Expand/Strengthen Network of Partners</strong>&lt;br&gt;Integration with Joint Services and increase interaction with industry, non-traditional partners</td>
<td><strong>Mature Government / Industry Partnerships</strong>&lt;br&gt;Robust government, industry and service partnerships, and FMS engagement</td>
<td><strong>Integration with Naval and Joint Force</strong>&lt;br&gt;Shape our force to operate as part of the Joint Force to leverage capabilities of all branches</td>
</tr>
</tbody>
</table>

*Source: A Design for Maintaining Maritime Superiority Released 5 Jan 2016*

*Source: USMC FRAGO: Advance to Contact Released 19 Jan 2016*
NAVAIR Snapshot

Full Life-Cycle Management
- Requests, Risks from Fleet, OPNAV
- Materiel Solution Analysis
- Technology Maturation & Risk Reduction
- Engineering and Manufacturing Development
- Production & Deployment
- Operations & Support

Products
- Tactical Aircraft
- Air ASW, Assault & Special Mission
- Unmanned Aircraft & Strike Weapons
- Common Systems, Mission Systems, Training, ALRE

NAWCWD
West Coast Hub
- Point Mugu
- China Lake
- North Island
- Atsugi, Japan

NAWCAD
East Coast Hub
- Lakehurst
- Patuxent River
- Cherry Point
- Jacksonville
- Orlando

COMFRC
Fleet Readiness Centers

27,298
Civilians

1,654
Military

8,875
Contractors

FY16 Workforce Numbers
Mission

The Navy’s principal RDAT&E, engineering and fleet support activity for naval aircraft, engines, avionics, support systems and ship/shore/air integration.
NAWCAD Key Resources

Lakehurst, New Jersey

- 123 Structures totaling 1,057,831 sq. ft. on 7,400 acres
  - Aircraft Platform Interface Lab
  - EMALS Test Site
  - Steam Catapult Complex
  - Runway Arrested Landing Site
- Jet Car track Site
- Jet Blast Deflector Site
- Carrier Analysis Facility
- Prototype & Manufacturing Facility

Patuxent River, Maryland

- 665 Structures on 13,812 acres, with 10 Hangars, 5 Runways
  - 2,700 sq. miles Patuxent Special Use Airspace to 85,000 ft.
  - Access to more than 50,000 sq. miles of additional offshore air and sea space
  - Anechoic Chamber, Becker Lab, ACETEF, SAIL, APF, P&P
- Test Wing Atlantic, USNTPS, Webster Field
- Controlled RF environment
- Over-water Approaches
- Instrumentation & Fabrication

St. Inigoes, Maryland

- 60 Buildings on 852 acres with 2 Active Runways
  - Shipboard ATC/Combat ID
  - Ship/Shore Communications
  - Controlled RF environment
- Over-water Approaches
- Aircraft tracking opportunities
- Pier and shoreline access

Orlando, Florida

- 40.5 acres and co-located with Team Orlando
  - USAF – AFAMS
  - USAF – PMTRASYS
  - Coast Guard
  - USMC – PMTRASYS
- Navy – NSA, NAWCTSD
- Army – PEO-STRI, RDECOM
Naval Air Warfare Center Weapons Division

Mission

The Naval Air Warfare Center Weapons Division (NAWCWD) is an organization within NAVAIR dedicated to maintaining a center of excellence in weapons development for the Department of the Navy.

Research and Development
Ranges and Facilities to Test and Evaluate Navy Systems
In-service Support/System Phase-out
Missiles/Freefall Weapons
Weapon System Integration
Electronic Warfare Systems
Land Range/Sea Range
Non-Lethal Weapons
NAVAIR Ranges

**NAWCWD Ranges**

- **R2508 Complex Airspace**
  - Approximately 20,000 square miles
  - 20,000 feet (FL200) to unlimited altitude
- **China Lake Land Ranges**
  - Approximately 1.1 Million Acres
  - Surface to unlimited altitude
- **IR-200 Low Level route connecting Sea and Land Ranges**
- **Point Mugu Sea Range**
  - Warning Areas 36,000 square miles; expandable to 220,000 square miles
  - Surface to unlimited altitude
  - Extensive area for supersonic testing
  - Unique geography for Directed Energy Testing

**Atlantic Test Ranges**

- **Chesapeake Test Range**
  - Approximately 2,700 square miles controlled airspace
  - Surface to 85,000 feet
- **Offshore Ranges**
  - Access to 50,000 square miles in the mid-Atlantic Warning Area
  - Surface to unlimited altitude
Commander, Fleet Readiness Centers (COMFRC) delivers effective and efficient flight-line readiness through a globally managed, responsive and integrated sustainment system.
Fleet Readiness Center Locations

- FRC Northwest
  NAS Whidbey Island, WA

- FRC West
  NAS Lemoore, CA

- FRC Southwest
  NAS North Island, CA

- FRC WestPac
  NAF Atsugi, Japan

- FRC ASE
  Solomon’s Island, MD

- FRC Mid-Atlantic
  NAS Oceana, VA

- FRC East
  MCAS Cherry Point, NC

- FRC Southeast
  NAS Jacksonville, FL
**Naval Aviation Maintenance**

### Three Levels of Aircraft Maintenance

<table>
<thead>
<tr>
<th>Level 1 – Organizational Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squadron Level</td>
</tr>
<tr>
<td>Servicing</td>
</tr>
<tr>
<td>Replace Parts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level 2 – Intermediate Level (Level 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components / Engines</td>
</tr>
<tr>
<td>Scheduled maintenance</td>
</tr>
<tr>
<td>In-service Repair</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depot Level (Level 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled maintenance</td>
</tr>
<tr>
<td>Modifications</td>
</tr>
<tr>
<td>In-Service Repair</td>
</tr>
<tr>
<td>Field Team In-Service Repair</td>
</tr>
<tr>
<td>Manufacture</td>
</tr>
</tbody>
</table>

*BRAC 2005 Initiative: Single Off-Aircraft Maintenance Organization (COMFRC)*
NAVAIR Products

Fixed Wing

Rotorcraft

Unmanned Air Systems

Weapons

Aviation Systems
PEO(T) Programs

PMW/A-101
Multifunctional Information Distribution System

PMA-231
E-2 / C-2

PMA-234
Airborne Electronic Attack Systems & EA-6B Prowler

PMA-251
Aircraft Launch and Recovery Equipment

PMA-257
AV-8B Harrier

PMA-259
Air-to-Air Missile Systems

PMA-272
Advanced Tactical Aircraft Protection Systems

PMA-265
F/A-18 / EA-18G

PMA-298
Air Warfare Mission Area

PMA-213
Naval Air Traffic Management Systems

PMA-273
Naval Undergraduate Flight Training Systems
PEO(A) Programs

- **PMA-261**: Heavy Lift Helicopters
- **PMA-264**: Air ASW Systems
- **PMA-275**: V-22 Osprey
- **PMA-276**: Light / Attack Helicopters
- **PMA-299**: Multi-Mission Helicopters
- **PMA-290**: Maritime Patrol & Reconnaissance Aircraft
- **PMA-271**: Airborne Strategic Command, Control & Communications
- **PMA-207**: Commercial Transport & Support
- **PMA-274**: Presidential / Executive Lift Helicopters
PEO(U&W) Programs

PMA-281
Strike Planning and Execution Systems

PMA-201
Precision Strike Weapons

PMA-263
Small Tactical UAS

PMA-208
Navy Aerial Targets and Decoys

PMA-262
Persistent Maritime UAS

PMA-242
Direct and Time Sensitive Strike

PMA-266
Multi-Mission Tactical UAS

PMA-268
Unmanned Carrier Aviation

PMA-280
Tomahawk Weapons System
AIR-1.0 Programs

PMA-260
Aviation Support Equipment

PMA-205
Aviation Training Systems

PMA-226
Specialized and Proven Aircraft

PMA-202
Aircrew Systems

PMA-209
Air Combat Electronics

PMW/A-170
Communication and GPS Navigation

Program Management Competency/Functional Lead
Policy / Process / Tools Stewardship across AIR-1.0 and PEO (A, T, U&W, JSF) Programs
A group of professionals executing 2,075 work years of international work at eight geographic sites within nine commands, eight competencies, and 28 program offices; managing a portfolio of 1,103 open cases for 85 countries with an overall value of $40.8B and generating sales of $3.9B for FY17.
International Programs Portfolio

**AIR-1.0**
- ARC-210 Radio; A-4; H-3; H-2; Sonobuoys; Trainers; S-2; T-6; T-2

**PEO(U&W)**
- JSOW; TMPS; Harpoon; SLAM-ER; HARM; Smokey Sam; AARGM; Tomahawk; Triton; Targets; JMPS; Scan Eagle

**PEO(T)**
- Radios, Flares and Impulse Cartridges; ALRE; E-2; AV-8B; F/A-18; A/C Protection Systems; Sidewinder

**PEO(A)**
- AH-1; C-130; H-53; P-3; P-8; H-60/S-70; V-22
F-35 Multi-Mission Capability

- Destroy Targets Deep in Enemy Territory
- Protect Ground Troops Engaged in Combat
- "Knock Down the Door" for Other Platforms
- Clear the Skies of Enemy Aircraft
- What’s Different from Legacy Aircraft
  - Stealth
    - Ability to go undetected
    - Maneuver at will throughout battlespace
  - Sensor Fusion
    - Combine many sources of info
    - Provides superb battlespace awareness
  - Interoperability
    - Pass vital information and data to all US legacy platforms
    - Makes everyone in battlespace smarter
- Survivable Against World’s Most Sophisticated Threats Now and in the Future
- Critical to US and Allied Air Dominance for the Next 50 Years
## F-35 Weapon System Overview

<table>
<thead>
<tr>
<th>F-35A</th>
<th>F-35B</th>
<th>F-35C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Force – 1,763</strong></td>
<td><strong>Marine Corps – 353</strong></td>
<td><strong>Navy – 273 and Marine Corps – 67</strong></td>
</tr>
<tr>
<td><img src="image1" alt="F-35A" /></td>
<td><img src="image2" alt="F-35B" /></td>
<td><img src="image3" alt="F-35C" /></td>
</tr>
<tr>
<td>Internal Gun</td>
<td>Lift Fan</td>
<td>Basket Refueling</td>
</tr>
<tr>
<td>Boom Refueling</td>
<td>Centerline Gun Pod</td>
<td>Roll Posts</td>
</tr>
<tr>
<td>3-Bearing Swivel Nozzle</td>
<td></td>
<td>Centerline Gun Pod</td>
</tr>
</tbody>
</table>

**Conventional take-off and landing**  
Partners – 441  
FMS – 132

**Short take-off vertical landing**  
Partners – 168

**Aircraft carrier variant**

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### F-35 Program – More than Just the Aircraft

- Air Vehicle
- Operational Flight Program
- Autonomic Logistics Information System
- Off-board mission support
- JSF Reprogramming Enterprise
- Mission Data File
- Full mission simulators
- Threat Database

1 Program / 3 Variants / 14 Customers / 3,197 Aircraft  
Big, Complicated Program with Significant Allied Participation
## Delivering Results

<table>
<thead>
<tr>
<th>Actual FY17 Deliveries</th>
</tr>
</thead>
<tbody>
<tr>
<td>135 New Aircraft</td>
</tr>
<tr>
<td>24,291 Missiles / Bombs</td>
</tr>
<tr>
<td>137* Unmanned Air Vehicles (UAV)</td>
</tr>
<tr>
<td>7 UAV Ground Systems</td>
</tr>
<tr>
<td>55 Training Devices</td>
</tr>
<tr>
<td>536 Aircraft Repairs (Includes Commercial/Inter-Service)</td>
</tr>
<tr>
<td>1,724 Engine Repairs (Includes Commercial/Inter-Service)</td>
</tr>
<tr>
<td>65,159 Component Repairs</td>
</tr>
<tr>
<td>3,360 Support Equipment Repairs</td>
</tr>
</tbody>
</table>

* Includes Program of Record and Non-PoR UAVs for USMC (PMA-263)
Naval Aviation Enterprise

Mission

Sustain required current readiness and advance future warfighting capabilities at best possible cost.

NAVAIR is part of the Naval Aviation Enterprise (NAE)

Led by Commander, Naval Air Forces; Marine Corps Deputy Commandant for Aviation; Commander, NAVAIR

Includes all naval aviation communities

Facilitates collaboration, information sharing and process improvement

Helps stakeholders understand costs, readiness degraders and resources

Ensures naval aviation is aligned, from the warfighter at sea or on the ground to the providers in government and industry

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