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THE HOUSE ARMED SERVICES COMMITTEE  
SUBCOMMITTEE ON TACTICAL AVIATION AND LAND FORCES

STATEMENT OF

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BEFORE THE

TACTICAL AIR AND LAND FORCES SUBCOMMITTEE OF THE  
HOUSE ARMED SERVICES COMMITTEE

ON

DEPARTMENT OF THE NAVY FISCAL YEAR 2023 BUDGET REQUEST FOR TACTICAL  
AVIATION

APRIL 27, 2022

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Chairman Norcross, Ranking Member Hartzler and distinguished members of the Subcommittee, thank you for the opportunity to appear before you today to address the Department of Navy's (DON) Fiscal Year (FY) 2023 budget request for Tactical Aviation (TACAIR) programs. A modern and sustainable TACAIR capability is essential to success in the high-end fight, serving as the cornerstone of the DON's power projection capability. Thank you to the Congress and this Committee for your support of these programs in the FY 2022 Authorization and Appropriation Acts.

The security of the Nation depends on a powerful and adaptive naval force guided by a maritime strategy that adapts to a rapidly changing world. Amidst increasing threats from our competitors, the Navy and Marine Corps team must continue to provide credible combat power forward and a ready response force to global crises and disasters. The Navy and Marine Corps are already engaged in joint, integrated deterrence globally, and COCOM demand for our unique naval capabilities continues to increase. The DON continues to invest in future capabilities and in our network of allies and partners, both of which maximize our naval power contribution to the Joint Force. These investments ensure an effective balance of readiness, capability, and capacity to deter aggression and prevail in conflict, today and well beyond tomorrow.

As our warfighters face an increasingly complex and challenging threat environment, the DON has placed a renewed emphasis on sustaining today's fleet while building tomorrow's. We will do that by increasing readiness, maximizing efficiency, and prioritizing investment in our most capable platforms and programs. The Department delivered 94 new aircraft for Navy and Marine Corps units last year, improving capability and enabling the divestiture of less affordable legacy systems. Initiatives including Mission Capable Aircraft Required (MCAR) goals and Performance-to-Plan (P2P) Aviation continue to improve operational readiness including mission capable rates and flying hour execution. DON investments in sparing, improved accountability, and process changes at the squadron, intermediate, and depot levels of maintenance paved the way to achieving MCAR goals for various aircraft types.

Our focus is about more than improving availability of our warfighters' current equipment, it's about delivering greater capability to the fleet. February 2022 saw the initial squadron standup of the EA-18G Growler Capability Modification that fielded a modern electronic attack capability, while 25 E-2D early warning aircraft received critical radar and

network upgrades. VFA-97 became the third operational F-35C squadron, and the second deployment of CMV-22 is underway today. In a continued effort to increase capabilities of our 4<sup>th</sup> and 5<sup>th</sup> generation aircraft, we invested in research and development of advanced sensor and Electronic Warfare (EW) capabilities, such as Next Generation Jammer (NGJ), that will increase capability against radar, communications and non-traditional EW targets. Additionally, we are integrating 5<sup>th</sup> generation compatible weapons such as Advanced Anti-Radiation Guided Missile – Extended Range (AARGM-ER) into the internal weapons bay capability onboard F-35s, enabling power projection and suppression of enemy air defenses.

The Department continues maturation of critical warfighting investments. In early 2022, VFA-147 completed the first F-35C deployment onboard USS Carl Vinson. In January 2022, VMFA-314 deployed onboard USS Abraham Lincoln marking the first time the DON deployed two F-35C squadrons concurrently. During the same timeframe, VMFA-211 executed the seventh F-35B deployment jointly with U.K. forces aboard the HMS Queen Elizabeth. The Marine Corps is currently executing its 12<sup>th</sup> deployment of the Joint Strike Fighter. VMFA-242 declared Initial Operating Capability (IOC) in 2021 with F-35Bs at Marine Corps Air Station Iwakuni, Japan. Both VMFA-121 and VMFA-242 operated onboard the Japanese Maritime Self Defense Force ship JS Izumo after the ship completed the first phase of modifications to operate F-35B.

Unmanned advancements continued with the MQ-25 prototype completing 36 sorties and 124.5 flight hours, achieving the first ever unmanned-manned aerial refueling test flights with the F/A-18E/F, E-2D and F-35C. The MQ-25 also conducted at-sea on-deck shipboard compatibility testing aboard USS George H W Bush, yielding valuable early test data and increasing program confidence in the Low Rate Initial Production design.

### **The Fiscal Year 2023 President’s Budget Request**

The President’s FY 2023 budget supports the Secretary of the Navy’s three enduring priorities – strengthening maritime dominance in defense of the Nation, empowering our warfighters, and strengthening our strategic partnerships – to deliver integrated all-domain Naval power. The FY 2023 budget request is analytically driven to meet our strategic goals, while balanced with reform targeted at maximizing the value of every dollar. The budget balances the requirement to fight and win today with investments necessary to build and maintain our naval

aviation advantage into the future. To better support our warfighters today, the budget bolsters readiness through improved training, sustainment and modernization. For the future, we will continue to divest of less capable platforms and systems, freeing resources to invest in a more powerful and resilient future force including unmanned platforms and long-range and hypersonic fires.

Overall aircraft procurement is decreasing in FY 2023 with the end of procurement of the E-2D Hawkeye. The President's Budget submission preserves procurement of F-35, KC-130J, E-2D, and MQ-9A and begins procurement of the Multi-Engine Training System (METS) and MQ-25. Continued investment in leading edge technology development and platform modernization makes the fleet stronger. The budget requests funding for 48 fixed wing aircraft including nine Navy and four Marine Corps F-35C carrier variants, 15 F-35B Short Takeoff and Vertical Landing variants, five E-2Ds, five Marine Corps KC-130Js and ten METS. Additional unmanned aircraft include three MQ-4C, five MQ-9A, and the first four carrier-capable MQ-25 aircraft. The budget request maximizes carrier air wing (CVW) lethality with capability improvements to 4<sup>th</sup> and 5<sup>th</sup> generation fighters, funding F-35C procurement and modernization that will field seven F-35C CVWs by FY 2027. Delivering 4<sup>th</sup> and 5<sup>th</sup> generation transformational capabilities to front-line forces as soon as possible remains a top priority. Rotary wing investments include 26 TH-73A trainers and ten CH-53Ks.

The FY 2023 budget makes investments to expand the industrial-based partnerships that are critical to our strength and capacity. The Department has requested funding to invest in the industrial base that supports our depot maintenance and weapon systems. This includes targeted investments to infrastructure, supply chain capacity, strategic outsourcing, workforce training, and new technologies.

## **Summary**

The DON remains the world's most powerful and capable naval force by delivering aviation platforms with the capability and capacity we need today, while also looking ahead to what we will need tomorrow. With Congress' continued support, we will provide the Nation with the Integrated All-Domain Naval Power required for the Joint Force to win today and tomorrow.

Programmatic details regarding Navy and Marine Corps capabilities are summarized in the following section.

## **U.S. NAVY AND MARINE CORPS TACTICAL AVIATION CAPABILITIES**

### **TACTICAL AVIATION**

#### **Carrier Air Wing (CVW)**

The striking power of the CVW remains the cornerstone of power projection capability from 11 of the world's most survivable airfields, our aircraft carriers (CVNs). The adaptability of the air wing keeps the aircraft carrier relevant through the carrier's 50 year service life. Today's Air Wing is transitioning to a mixture of 4th and 5th Generation strike fighter aircraft that continue to incorporate advanced capabilities to support the objectives of the National Defense Strategy (NDS). The Air Wing of Tomorrow achieves a mix of F-35C Lightning II, F/A-18E/F Block III strike fighters, and EA-18G Growlers, and introduces the MQ-25 Unmanned Air Vehicles (UAV). The MQ-25 will take over the aerial refueling mission, extending strike range, enhancing maneuverability, and enabling all strike fighters to focus on the high-end fight.

#### **Next Generation Air Dominance (NGAD)**

The highly networked Air Wing of the Future (AWOTF) will deliver game-changing lethality and survivability with the incorporation of the 6th Generation Next Generation Air Dominance (NGAD) Family of Systems (FoS). The Navy continues to accelerate development of the NGAD FoS to provide advanced, carrier-based power projection capabilities that extend the range of our carriers. The NGAD FoS will replace the F/A-18E/F Block II aircraft as they begin to reach end of service life in the 2030s and leverage Manned-Unmanned Teaming (MUM-T) in order to provide increased lethality and survivability. F/A-XX is the strike fighter component of the NGAD FoS that will be the "Quarterback" of the MUM-T concept, directing multiple tactical platforms at the leading edge of the battlespace. In FY 2021, F/A-XX began the Concept Refinement Phase and it remains on schedule. The DON will continue collaboration between Government and industry teams to develop vendor concepts that balance advanced air dominance capabilities and long-term affordability.

#### **Strike Fighter Inventory Management (SFIM)**

Strike Fighter Inventory Management (SFIM) is the process the DON uses to manage the capacity and capability required to support the CVWs. SFIM is dependent on three critical and independent factors: depot maintenance ability to sustain the fleet; new procurement to replace or

extend end-of-service life aircraft; and utilization rates required for force generation. The Department has appropriate levers in place to manage the strike fighter inventory through ongoing F-35C production and F/A-18E/F Service Life Modification (SLM). Currently, while the gap is not eliminated, there are sufficient resources and levers to support Global Force Management and operational capability through the Future Year Defense Program (FYDP).

In FY 2022, the DON continued investments in industrial equipment assets for the Fleet Readiness Centers, where intermediate and depot aviation maintenance is performed. Over the last three years, the Navy has acquired more than 120 assets with modern interfaces and globally recognized standards to address aging, inefficient and unreliable industrial equipment. In addition, Naval Aviation Maintenance Centers of Excellence are preparing aircraft designated for SLM in order to reduce cost and schedule on the SLM lines and return long-term down aircraft to the fleet.

The SLM program continues to mature, decreasing cost and schedule while extending the service life and capability of existing F/A-18E/F inventory. Beginning in FY 2023, aircraft inducted will now receive the full SLM upgrade, including a service life extension to 10,000 hours and the incorporation of Block III capabilities. In FY 2023, 23 aircraft are scheduled to be inducted.

### **Tactical Aircraft Force Mix**

The AWOTF continues the focus on coupling the 5<sup>th</sup> generation combat capabilities resident aboard the F-35C with the weapons capacity aboard the 4<sup>th</sup> generation F/A-18 E/F. Continued investment in the survivability and lethality in our Lightning II, Super Hornets, and future weapons will ensure DON investments directly counter and defeat our adversaries' combat advancements. The F-35C also brings other unique warfighting capabilities to the USMC and the Marine Air-Ground Task Force. Combined with the TACAIR Integration commitment, the F-35C will integrate and deploy for all USMC global force commitments except Marine Expeditionary Unit (MEU) deployments, which require vertical landing capability aboard L-Class ships.

In 2021, the Marine Corps contracted with the Center for Naval Analysis to study the structure of all Marine Aviation as directed by the FY 2021 National Defense Authorization Act. That study is in the process of completing, and will release later this year. The Marine Corps also continuously evaluates manpower posture as it redesigns the force for maximum efficiency

and to align with Force Design and the NDS. This ongoing analysis includes training models, pilot and maintainer qualification requirements, and unit end-strength models in order to ensure support to the Combatant Commanders while effectively managing the deployment tempo of our personnel and equipment.

### **Pilot and Aircrew Shortfalls and Mitigation Strategies**

The Navy and Marine Corps are investing in talent management and producing more capable Sailors and Marines while increasing our ability to attract and retain the most talented individuals across the Force. For Naval Aviation, we continue to meet all fleet requirements and are evaluating and analyzing diversity, equity, and inclusion within the Naval Aviation Enterprise. This analysis has informed our lines of effort for broadening recruitment and outreach efforts to attract underrepresented talent, as well as focusing on retention efforts to ensure the Department retains those with the qualifications needed. The DON continues to focus on retention, merit-based bonuses and incentive pay to keep talented aviators across different levels of rank, with differing pay amounts based on specific community retention goals. The Department expects competition for talent with industry will continue, requiring a robust and competitive compensation program to recruit, retain, and distribute the force.

### **F-35 Joint Strike Fighter**

The F-35 plays a critical role in the Navy and Marine Corps' future Distributed Maritime Operations warfighting concepts, providing a lethal and survivable strike and sensor platform for operations in a highly contested environment. Further, sea-based F-35Bs and F-35Cs provide the joint force commander a credible and flexible contact and blunt layer option, imposing both cost and risk to an adversary's actions.

The Marine Corps has already established two Fleet Replacement Training Squadrons, one operational test squadron, and six operational line squadrons which are deploying regularly. USMC F-35Bs are currently deployed with the 31st MEU in the INDO-PACOM area of responsibility. As the first-ever deployment of the F-35B on a foreign vessel, VMFA-211 conducted operations aboard the HMS Queen Elizabeth as part of Carrier Strike Group 21. This deployment provided a portion of the allied operations for the platform during 2021. In total, F-35 operated aboard four different ships from three different countries through the year. This not

only exercised flexibility, lethality, and survivability from sea-based expeditionary basing, but also proved the feasibility of operational maneuver for the airframe from allied ships. To date, three F-35B squadrons have operated in combat.

The Navy has established one Fleet Replacement Training Squadron, two operational squadrons, completed the maiden F-35C deployment with Navy's VFA-147 aboard USS Carl Vinson, and the DON is conducting the second F-35C operational deployment with VMFA-314 aboard USS Abraham Lincoln. TOPGUN is operating two F-35Cs and has incorporated the F-35C into the 4<sup>th</sup> / 5<sup>th</sup> generation Fighter integration events in TOPGUN classes.

The DON remains committed to reducing F-35 costs for both production and sustainment. The F-35 program identified seven levers to meet Service cost per flying hour (CPFH) / cost per tail per year (CPTPY) affordability targets. A key mechanism for incentivizing sustainment cost reduction is the CY 2021-2023 air vehicle sustainment contract that was awarded last year. New sustainment contract vehicles for both air vehicle and propulsion are in work to continue progress in reaching affordability targets. The current contract structure contains provisions to enable reaching the CPFH target of approximately \$30,000 by 2025. Other operation and sustainment cost reductions are ongoing to achieve the CPTPY target of \$6.8 million for the F-35B, and \$7.5 million CPTPY for the F-35C.

The F-35 enterprise continues to address the F-135 Engine Power Module (PM) shortfall via three separate lines of effort: increased throughput at Heavy Maintenance Center (HMC) Tinker; increasing and accelerating capacity at other enterprise depot sites; and increasing PM time on wing to reduce demand. Over the past 18 months, HMC has worked diligently to increase throughput. Lessons learned there are being applied to existing enterprise depots and will be incorporated in future depot stand-ups at FRC-SE and Japan sites. Additionally, data show over the past 18 months PM time on wing improving as PM removals across the enterprise have been reduced by 26 percent. If controls in PB23 remain as they are today, enterprise capacity is forecasted to meet removal rate in 2025 with backlog burn-down complete by 2028.

The FY 2023 budget requests \$4.7 billion in Aircraft Procurement (APN) funds for 15 F-35B and 13 F-35C aircraft, modifications, and spares.



## **F-35 Continuous Capabilities Development and Delivery (C2D2)**

As the premier fighter/attack aircraft in the US inventory, the F-35 must continue to maintain an advantage over continually improving adversary airborne and ground-based interceptors. Continuous development and regular fielding of weapons system upgrades maintains a technological advantage empowering our warfighters with a dominant and enduring capability.

Having restructured Block 4 Follow-on Modernization into a more agile and responsive capability development program, C2D2 now develops capability in smaller, more easily managed increments which field capability more often and with less risk. To continue delivering critical warfighting improvements to the F-35 while maximizing financial investments made by our international partners in FY 2023, the DON requests \$1.0 billion in RDT&E.

## **F/A-18 A/B/C/D Hornet**

Service Life Extension Program (SLEP), High Flight Hour (HFH), and Center Barrel Replacement (CBR+) efforts extend the F/A-18C/D beyond its original service life of 6,000 hours, to 8,000 hours. Additional Service Life Extension Authorizations extend service life to 9,000 hours, and up to 10,000 hours for select aircraft. Seventeen aircraft were inducted for HFH and/or CBR+ and included SLEP modifications in FY 2021, with 16 aircraft planned for delivery in FY 2022. Along with flight hour extensions, these aircraft require capability upgrades to their radars, electronic warfare suites, and avionics systems to maintain lethality, survivability, and availability to meet the documented Marine Corps requirement for tactical aircraft that can support the NDS and National Military Strategy through 2030. These capability requirements enable the Marine Corps to operate the F/A-18C/D through FY 2030 while supporting the TACAIR transition to F-35B/C. Overall readiness and sustainment of the F/A-18C/D platform provided an average mission capable rate of 68 percent in calendar year 2021 and 64 percent in calendar year 2022 to date.

The FY 2023 President's Budget requests \$141.5 million in APN for F/A-18C/D. This includes funding to implement aircraft commonality programs, improve reliability, and ensure structural safety of the F/A-18C/D inventory, and funds the continuation of Hornet capability enhancements.

### **F/A-18E/F Super Hornet**

The F/A-18E/F Super Hornet will be the predominant strike-fighter in the CVW into the mid-2030s. Continued delivery of new aircraft, capability enhancements, and SLM significantly improves CVW lethality. The final new production F/A-18E/F Block III is expected to deliver in FY 2026. In tandem with these Block III deliveries, SLM initiatives and capability upgrades enhance our inventory by maintaining the tactical relevance of the F/A-18 E/F. The F/A-18E/F enhanced Block I Infrared Search & Track (IRST) completed a highly successful combat deployment with CVW-17 to the CENTCOM area of responsibility. IRST Block II, a separate acquisition program, is continuing development and testing, and is on track to declare IOC in FY 2024, bringing critical out-of-band detection and weapon-quality-track capability against advanced air threats.

The FY 2023 President's Budget requests \$90.9 million of APN for support costs associated with the delivery of F/A-18 E/F aircraft. Additionally, the budget requests \$1.2 billion of APN for F/A-18 E/F and EA-18G Modernization and Sustainment, IRST, and F/A-18 Series. Finally, the FY 2023 budget requests \$239 million of RDT&E for improvements, radar upgrades and Block III capabilities.

### **AV-8B Harrier**

The AV-8B Harrier program is a critical component of the Marine Corps' transition to F-35B. The platform has completed critical validation/verifications to enhance flight safety, increase readiness and improve supply chain asset management. The program continued development of final fit capabilities including Sidewinder Air-Intercept Missile (AIM-9X) integration, expanded Joint Standoff Weapon (JSOW) and Joint Direct Attack Munition (JDAM) capabilities, and enhanced Link-16 functionality. These upgrades continue enabling combat deployments and are preparing the platform for continued MEU support through 2028.

The FY 2023 budget request continues a time-phased budget transition from investment accounts toward Operations and Maintenance to support platform sustainment during sundown. \$9.2 million in RDT&E funds continue design, development, integration, and test of Operational Flight Program upgrades, weapons integration and expansion flight test requirements, and safety and reliability improvements to the airframe and engine and to mitigate obsolescence issues. \$26.7 million in APN continues the incorporation of Obsolescence Replacement/Readiness

Management Plan systems, electrical and structural enhancements, LITENING Pod upgrades, engine safety, digital interoperability upgrades that include Link-16, and inventory sustainment upgrade efforts to offset obsolescence and attrition.

### **AIRBORNE ELECTRONIC ATTACK (AEA)**

#### **EA-18G Growler**

The EA-18G Growler is a critical enabler for the Joint force, bringing fully netted electronic warfare capabilities to the fight and providing essential capabilities in the Electromagnetic Maneuver Warfare environment. Along with the electronic attack suite, the Growler also features the APG-79 Active Electronically Scanned Array radar. EA-18G Growler, an Airborne Electronic Attack aircraft integrates, the latest electronic attack technology, including the ALQ-218 receiver, jamming pods, communication countermeasures, and satellite communications. The Growler Capability Modification (GCM) Program, the first major effort to upgrade EA-18G capabilities in the history of the program, commenced at Naval Air Station Whidbey Island, Washington, in March 2021. The GCM completed first squadron stand up in February 2022.

#### **Next Generation Jammer (NGJ)**

NGJ is the next generation electronic warfare capability to counter the evolving threat. NGJ pods replace the legacy ALQ-99 pods on the EA-18G and provide full spectrum integrated non-kinetic effects. The delivery of NGJ increases EA-18G Growlers lethality and capability against radar, communications, and non-traditional EW targets utilizing advanced Airborne Electronic Attack (AEA) techniques while providing improved reliability and maintainability. NGJ is phased by threat, with initial focus on Mid-Band (MB), followed by Low-Band (LB).

NGJ-MB is a cooperative development program with Australia and has entered developmental test, with positive results to date. Delivery of the six production representative System Demonstration Test Articles begins in May 2022. These Test Articles will be used to support the completion of Developmental Test and the entirety of Operational Test (OT). OT is currently on track to start spring 2023, with a focus on the completion of aeromechanical and mission systems flight test. The FY 2023 budget includes \$54.7 million in RDT&E funding for NGJ-MB to complete development test, OT Readiness Review, IOT&E and complete delivery of

the six Systems Demonstration Test Articles. The FY 2023 budget request also includes \$401.6 million in APN funding for nine Low Rate Initial Production III shipsets, associated support equipment, training equipment and production support.

NGJ-LB is a critical AEA capability to augment and replace the legacy ALQ-99 Tactical Jamming System on the EA-18G in the low frequency bands not covered by MB, and is a cooperative development program with Australia. The FY 2023 budget request \$301.7 million RDT&E for NGJ-LB to focus on pod design, advanced capabilities development, and support to ground and flight testing.

### **WEAPONS PROGRAMS**

The Department continues to pursue a wider, more systematic approach towards delivering offensive weapons. Efforts to preserve the readiness and capacity of our key strike weapons inventories, pursue strike weapon capability enhancements, and develop next-generation missile capabilities to address emerging threats will increase overall force effectiveness.

#### **Offensive Anti-Surface Warfare (OASuW) Increment 1/ Long Range Anti-Ship Missile (LRASM), OASuW Increment 2, Joint Air-to-Surface Standoff Missile (JASSM)**

The FY 2023 President's Budget requests \$226.0 million to fund LRASM efforts associated with filling congressionally directed Operational Testing, which includes telemetry kit installations and test support. FY 2023 also funds procurement and installations of updated Weapon Data Link to satisfy compliance of NSA crypto modification mandate, and procures 60 DON Long Range Anti-Ship Missile (LRASM) weapon systems. The FY 2023 President's Budget also requests \$12.8 million for completion of the LRASM 1.1 capability improvements.

The FY 2023 President's Budget requests New Start authority to begin Technology Development in support of OASuW Increment 2, now referred as Hypersonic Air Launched OASuW (HALO). HALO supports the national imperative to mature hypersonic capabilities. The program represents a longer-term capability that encompasses increased performance and will provide the Navy a necessary air launched, carrier based weapon to address evolving long range high speed threats from near peer competitors. In order to deliver this capability to the warfighter when needed, the DON will collaborate heavily with the Air Force.

The Joint Air-to-Surface Standoff Missile (JASSM) adds near term, cost effective capacity to the DON's long range strike capability while enhancing the OASuW mission. The FY 2023 budget requests funding for Navy strike mission integration and employment by upgrading the existing AGM-158 product to respond to rapidly changing threats. Navy AGM-158 development efforts also involve development and integration of a radio subsystem to enable dual mission capability and enhanced operational flexibility, optimizing carrier magazine capacity to complement OASuW warfighting capability. The FY 2023 President's Budget requests \$18.9 million to continue developing AGM-158 derived capability and radio integration on F/A-18; develop software for strike mission planning, Universal Armament Interface (UAI) and missile Operational Flight Plan (OFP).

### **Advanced Anti-Radiation Guided Missile (AARGM) & AARGM Extended-Range (AARGM-ER)**

AARGM procurement completed in FY 2021 with the award of the last DON Full Rate Production (FRP) contract. There have been 1366 AARGMs (All Up Rounds, Training Missiles, and Spares) delivered to the Fleet as of March 2022. Program of record delivery is 1803 missiles. Deliveries continue through FY 2024 in support of the transition to AARGM-ER. AARGM-ER provides the DON with a 5th generation compatible extended range asset to project power and provide Suppression of Enemy Air Defenses, both at-sea and on land. The FY 2023 President's Budget requests \$90.8 million in RDT&E to support operational and Integration testing of production representative hardware. The budget requests \$131.3 million in Weapons Procurement, Navy (WPN) to procure 69 AARGM-ER all-up-rounds and six Captive Air Training Missiles.

### **Sidewinder Air-Intercept Missile (AIM-9X)**

The AIM-9X (Sidewinder) missile is a datalink-enabled, launch and leave, air combat munition that uses passive Infrared energy to acquire and track enemy air targets. The FY 2023 budget requests \$29.2 million in RDT&E that will be applied toward the EMD of critical hardware redesign driven by obsolescence; and development of hardware and software to maintain required performance against evolving threat countermeasures. The budget also includes \$63.2 million in WPN funding to procure a combined 128 All-Up-Rounds and Captive Air Training Missiles and associated missile/trainer related hardware.

### **Advanced Medium-Range Air-to-Air Missile (AMRAAM/AIM-120D)**

The AMRAAM program provides for the acquisition and upgrade of the Department's only advanced all-weather, all-environment medium range air-to-air missile system. AMRAAM is a joint program with the U.S. Air Force, which also supports the North Atlantic Treaty Organization, and 41 allied countries' operational requirements while also providing for a more lethal naval fighting force and continued maritime dominance through power projection.

The FY 2023 budget requests \$30.9 million in RDT&E. The RDT&E will be applied toward continued software capability enhancements to counter emerging threats; completion of test and fleet release of System Improvement Program missile. The budget also includes \$335.9 million in WPN funding to procure 337 all-up-rounds and associated missile/trainer related hardware. AMRAAM WPN and RDT&E funding directly supports the Pacific Deterrence Initiative by increasing joint force lethality through increased missile inventory and weapon effectiveness.

### **Small Diameter Bomb II (SDB II)**

Small Diameter Bomb Increment II (SDB II) is an Air Force led, joint program that provides the warfighter a capability to attack mobile targets in all weather conditions from stand-off range. The FY 2023 budget requests \$42.9 million in RDT&E for continued development/test of the SDB II weapon, F-35 developmental testing and integration, Boeing BRU-61 integration and support for integration of BRU-55 racks on F-18 stations. F/A-18E/F will IOC December 2022 and we project F-35B early operational capability (EOC) in FY 2022 with F-35C planned for FY 2023. The DON also requests \$108.3 million in WPN to procure 481 All-Up-Round weapons.

### **Joint Air-to-Ground Missile (JAGM)**

The Joint Air-to-Ground Missile (JAGM) is an improved air-launched missile system, which utilizes multi-mode seeker technology providing advanced line-of-sight and beyond-line-of-sight capabilities. The FY 2023 budget requests \$0.37 million in RDT&E to continue software correction of deficiencies and associated airworthiness engineering/logistics support and any required test validation including integration testing, operation testing and cyber testing. The budget request

also includes \$78.4 million in WPN to procure 293 tactical missiles and seven Captive Air Training Missiles.

### **Advanced Precision Kill Weapon System II (APKWS II)**

APKWS II provides high-stowed precision capability combined with low-yield warheads to reduce the risk of collateral damage while achieving the desired effect on the target. The FY 2023 budget requests \$19.7 million in Procurement of Ammunition, Navy and Marine Corps for procurement of 825 APKWS II guidance section kits for use on both rotary-wing and fixed-wing platforms.

### **Direct Attack Weapons and General Purpose Bombs**

Fully funding the General Purpose Bombs and Joint Direct Attack Munition (JDAM) line items is critical to building and maintaining the DON's direct attack weapons inventory. The FY 2023 budget requests \$47.2 million for General Purpose Bombs, \$76.7 million to procure 3,037 JDAM kits, and \$51.1 million for more affordable practice bombs to enhance readiness and prepare for future contingencies.