

Air Combat Command

OA-X Enabling Concept



23 December 2008

AIR COMBAT COMMAND

OA-X

ENABLING CONCEPT

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Prepared by: HQ ACC/A3F
Michael W. Pietrucha, Lt Col, USAFR
Mike Saridakis, Lt Col, USAF
J. David Torres-Laboy, Lt Col, USAF

Reviewed by: HQ ACC/A3F
David C. Wright, Colonel (Sel), USAF

Submitted by: HQ ACC/A3
Frank Gorenc, Major General, USAF

Approved by: HQ ACC/CC
John D.W. Corley, General, USAF

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1.0 PURPOSE

- 1.1. The purpose of the ACC OA-X Enabling Concept is to frame an operational construct for ACC's fielding of a light attack/observation aircraft, referred to as OA-X, in support of Combatant Commanders' (CCDR) close air support (CAS), armed reconnaissance, building partnership capacity (BPC) and combat air forces (CAF) training requirements. OA-X units will routinely train with ground forces, based on their location and the availability of training venues. This ACC OA-X Enabling Concept will establish a US Air Force definition of the OA-X mission and provide a baseline for Joint Capabilities Integration and Development System analyses for acquisition. The Army and Marine Corps will be the primary customers of OA-X training for ground support (i.e., CAS), although many of our allies like the Canadian, British, Australian and New Zealand air forces may similarly benefit.
- 1.2. The authority for the organization and structure of this document comes from AFI 10-28 AF Concept Development and ACCI 10-280, ACC Concept Development. This Enabling Concept is in direct support of the ACC Irregular Warfare (IW) Operating Concept, AFDD 2-3, Irregular Warfare, the Joint Irregular Warfare Operating Concept, CAF Strategic Plan, AFDD 2-3.1 Foreign Internal Defense, and two USAF CONOPS –Global Persistent Attack and ISR (draft).
- 1.3. Applicable Joint Capabilities Areas that are limited today include the following: Force Application, Command and Control, Building Partnerships, and Battlespace Awareness.
- 1.4. Applicable tasks from the Universal Joint Task List, CJCSM 3500.04C, that are limited today include the following:
 - 1.4.1. Attack
 - 1.4.2. Combat Search and Rescue
 - 1.4.3. Counterdrug
 - 1.4.4. Counterterrorism
 - 1.4.5. Foreign Internal Defense
 - 1.4.6. Nation Assistance
 - 1.4.7. Peace Enforcement
 - 1.4.8. Peacekeeping
 - 1.4.9. Rear area security
 - 1.4.10. Reconnaissance, Surveillance, and Target Acquisition
 - 1.4.11. Show of Force
 - 1.4.12. Support to Counterinsurgency
- 1.5. This enabling concept shall be updated as the concept matures.

2.0 TIME HORIZON, ASSUMPTIONS AND RISKS

2.1. **TIME HORIZON.** This ACC OA-X Enabling Concept is based on an ACC initiative to field and employ an affordable light attack and observation aircraft for combat and other operations worldwide. The capabilities listed are required for current conventional and IW operations supporting Combatant Commands (COCOM) today and in the near future. The OA-X Enabling Concept document is applicable until 2020.

2.2. ASSUMPTIONS

- 2.2.1. Effective IW operations require a mix of manned and unmanned airborne attack and observation missions.
- 2.2.2. During major combat operations (MCO), light attack capabilities can be utilized when high threat systems are avoided, abandoned, suppressed, and/or destroyed.
- 2.2.3. Manned airborne attack capability will be required for the foreseeable future.
- 2.2.4. Airborne non-traditional intelligence, surveillance and reconnaissance (NTISR) capabilities will continue to be critical enablers in the MCO, IW and hybrid operating environment.
- 2.2.5. US would benefit from a US capability to conduct BPC and/or foreign internal defense (FID).
- 2.2.6. The USAF will continue to operate in a fiscally constrained environment.

2.2 RISKS

- 2.2.1 Without alternative, lower-cost air capabilities, the USAF will continue to exhaust critical legacy assets, shortening their lifecycles.
 - 2.2.1.1 Continued reliance on the A-10, B-1, B-52, F-16 and F-15E fleets to conduct armed reconnaissance and CAS missions in Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF) will significantly reduce airframe lifespan due to utilization rates that are much higher than planned and programmed.
 - 2.2.1.2 Continued use of B-1, B-52, F-16, and F-15E fleets in OEF and OIF will further reduce their crews' training focus on their primary declared operational capability tasked missions in MCO. An equivalent OIF/OEF air expeditionary force preparation construct is not applicable in a short-lived deployment for MCO.
 - 2.2.1.3 Continuing maintenance and other support issues in legacy fleets will worsen as they age, resulting in a future loss of combat capability available to CCDRs worldwide.

- 2.2.2 Increasing fuel costs and future risk of availability will continue to impact modernization funds and endanger upgrade and recapitalization efforts.
- 2.2.3 Lack of an exportable attack capability will prevent partner nations (PN) from being able to operate attack aircraft similar to those possessed by the USAF and impact the U.S.'s ability to conduct operations "by, with and through" partner nations."
- 2.2.4 The delay in procurement of the next generation air refueler will result in severe limitations on the operations of combat aircraft that are tanker-dependent, particularly the F-16 and F-15E.
- 2.2.5 Operating costs to develop and maintain current and future Mission Design Series aircraft will continue to increase due to the age of the systems and/or complexity of the design. If uncontained, this will reduce our recapitalization capability in the mid-to-long term.
- 2.2.6 The USAF faces a drastically reduced cadre of rated officers with CAS experience as the current inventory of F-16 and A-10 is reduced. This pool of joint experts in CAS, Forward Air Controller- Airborne (FAC(A)), Strike Control and Reconnaissance (SCAR), air interdiction (AI), Combat Search and Rescue (CSAR), and direct support to special operations elements is a highly perishable capability.
- 2.2.7 CAS capable aircraft will be required to train and sustain an expanding Joint Terminal Air Controller (JTAC) force structure. Sortie availability of current CAS assets is projected to decline as this requirement increases.
- 2.2.8 Funds for procurement of the OA-X system could threaten funding for current air-ground weapon systems upgrades (A-10, F-15E, F-16, F-22, and MQ-9) and procurement of newer air-ground capable aircraft (e.g. F-35).
- 2.2.9 Using historical precedence, this capability could be reduced or even eliminated (with a significant cost sacrifice) following cessation of operations in OIF and OEF.

3.0 BACKGROUND

- 3.1. The use of light attack aircraft to provide much-needed air support has been a staple of counterinsurgency operations since the end of the Second World War. French operations in Vietnam and Algeria, American operations in Vietnam, and numerous counterinsurgency efforts in South America have seen light attack aircraft as a staple of effective air operations. These aircraft offer endurance, firepower, reliability and can be operated at a cost substantially less than their fast-jet counterparts. The USAF, having retired the A-1E and O-2 after Vietnam,

and having eliminated the OV-10 and OA-37 fleet and reduced the A-10 fleet by 50% since DESERT STORM, faces a critical gap in its ability to conduct air support for extended periods in the Long War.

- 3.2. Since 2001 and the beginning of OEF and through our combat operations in Iraq and OIF, there has been a continuous armed overwatch presence, using A-10s; high performance fighters such as the F-16, F-15E and F-18; B-1 and B-52 bombers; and MQ-1/9 unmanned aerial systems (UAS).
- 3.3. Additionally, the fuel and maintenance costs of these operations have continued to increase. In March 2008, HQ ACC/A3F calculated that the replacement of one and a half squadrons of deployed fighters with OA-X would save well over 300 million dollars per year in fuel and operations costs. (One squadron of F-16s and half of a squadron of F-15Es require about 420,000 pounds of off-loaded fuel from six tankers per day, which themselves use another 540,000 pounds of fuel. Ref: ACC/A3F white paper, *A New Light Attack Aircraft*, served as the foundation for ACC's OA-X project and was also integrated into the ACC IW Operating Concept). The maintenance cost differences between the OA-X and, say an F-16C are also significant. The maintenance man-hours per flying hour (MMH/FH) of an F-16C is 17.75 while those of an AT-6, for example, would be in the vicinity of two or three (Ref: *AT-6 – The Best USAF Investment for the Long War*. Air University, Air Command and Staff College).

4.0 DESCRIPTION OF THE MILITARY CHALLENGE

- 4.1. The Irregular Warfare Joint Operating Concept describes the military challenge:
 - 4.1.1. The complexity of the future security environment is rooted in global and regional ideological and political struggles. These struggles will challenge traditional US military approaches. Faced with the conventional warfighting capacity of the United States, our adversaries will likely choose to fight using a hybrid of irregular, disruptive, catastrophic, and traditional capabilities as a way to achieve their strategic objectives. The strategy of our adversaries will be to subvert, attrite, and exhaust us rather than defeat us militarily. They will seek to undermine and erode the national power, influence, and will of the United States and its strategic partners. Our adversaries will continue to wage IW against us until we demonstrate the same competency in IW that we demonstrate in conventional warfighting.
 - 4.1.2. The United States and its partners are likely to face state and non-state adversaries in protracted struggles for popular support and legitimacy. Future conflicts will likely be fought amongst the people, limiting the utility of conventional applications of military power. This problem will be exacerbated by the increasing number of hostile states armed with weapons of mass destruction and sophisticated anti-access capabilities that

may preclude direct military options. These situations will therefore require or favor an irregular military approach of using indirect and often nonconventional methods and means to achieve U.S. strategic objectives.

- 4.2. ACC must be able to operate across the full range of military operations, but lacks a “right-tech” solution required in IW and lower-threat conditions across the spectrum of conflict. The capability to conduct IW missions, in particular, should be additive to the CAF mission set. In accordance with DoD Directive 3000.07, 1 Dec 2008, the USAF must recognize that IW is as strategically important as traditional warfare. Many of the capabilities and skills required for IW are applicable to traditional warfare, but their role in IW can be proportionally greater than in traditional warfare.
- 4.3. Combat operations in both OEF and OIF are conducted under a 24-hour umbrella of air cover. Since 2001 and the beginning of OEF and through combat operations in Iraq during OIF, there has been a continuous ISR and CAS presence, using aircraft such as the A-10, F-16, F-15E, B-52, B-1, F-18, MQ-1/9, and similar coalition assets. The operations tempo of these deployed aircraft remains very high, placing high numbers of flying hours on these airframes in a very short timeframe.
- 4.4. Fixed-wing aircraft provide armed reconnaissance and on-call CAS for ground forces. These aircraft are routinely employed to provide overhead surveillance with targeting pods, employ precision ordnance, respond to troops in contact, provide security to provisional reconstruction teams and conduct shows of presence in support of ground forces.
 - 4.4.1. Combat weapons employment include aerial gunnery (20 and 30 MM), laser guided bombs (LGB), Inertially-Aided Munitions (IAM), and precision air-ground munitions (AGM). Single passes are routine where one weapon is accurately employed by one aircraft.
 - 4.4.2. Fighters are often required to conduct single-ship operations, while one aircraft refuels and the other remains in contact. Flight capability and mutual support is reduced as the situational awareness within the flight is diminished. Furthermore, in single-seat fighters, this creates an unacceptable burden of responsibility to low-time, inexperienced wingman.
 - 4.4.3. The ability for the USAF to operate with or respond to distributed ground forces operating over a wide area requires an increased number of manned CAS/armed reconnaissance platforms in an era when current inventory faces reductions.
- 4.5. The CAF must be able to operate in enduring IW or hybrid warfare scenarios with cost-effective and affordable light attack aircraft like the OA-X. Currently

available manned aircraft, which include B-1B, F-16, A-10, F-15E, Navy and Marine F-18 and Marine Corps AV-8B, are comparatively high-performance aircraft that are reliant to one degree or another on tanker support. The employment of these aircraft, originally designed for MCO operations in an integrated air defense environment, is an expensive method of providing a constant level of air support.

- 4.5.1. A key component of IW is BPC. The USAF needs to operate an OA-X platform which could be affordable and transferrable to PNs to develop a like capability. The USAF does not operate a light attack aircraft which can be used to help PN from lower tiered countries develop a light attack/observation capability, leaving a hole in the US capability to conduct BPC or FID. If another key component of IW is to win political support of the general population (hearts-and-minds), then doing so in an OA-X flown by the PN versus an aircraft flown by the USAF further advances the CCDR's objectives.
- 4.6. Effective IW operations require a mix of unmanned and manned airborne attack and observation missions. Generally the IW environment will offer a lower threat environment to our airborne assets. After hostilities commence and threats diminish, the reduced-threat environment may cover wide areas of the battlefield for long periods. At that time a light attack capability would offer efficiencies and persistence over current high-end manned systems and the flexibility and responsiveness over unmanned systems.

5.0 SYNOPSIS

- 5.1. The OA-X will offer commanders and planners a persistent, precision light attack capability comparable to current fighter aircraft at a fraction of the operating cost. Its flexibility, comparatively long loiter time, sensor capability, communications array, and weapons options are intended to complement existing high-performance aircraft and unmanned aerial systems in providing support to the joint force commander.
- 5.2. A light attack capability currently provided by advanced fighter and attack helicopters will continue to be a valuable asset for commanders conducting operations in both OEF and OIF. An OA-X ability to operate from austere field conditions at the onset of combat operations is a capability lacking in all but the A-10. A-10 forward operating location operations during the first month of OIF from Iraqi airfields and the first years of OEF from Bagram Air Base in Afghanistan proved invaluable to the success of USAF abilities to prosecute MCO and IW in these conflicts.
- 5.3. OA-X will be capable of supporting CAS, FAC(A), SCAR, Interdiction, CSAR, ISR and armed reconnaissance missions. The small footprint, transportability, and austere field capabilities of the OA-X will also significantly enhance the

CAF's ability to support Special Operations Forces (SOF) worldwide as the SOF community expands per the 2006 Quadrennial Defense Review.

- 5.4. The cost for OA-X aircraft is expected to be substantially less than high-performance aircraft, enabling their purchase by all tiers of PNs. The capability for PNs to purchase and employ aircraft similar to those in USAF service will result in a substantial increase in USAF capabilities with respect to BPC.
 - 5.4.1. In PN service, OA-X aircraft could be used for both basic and advanced flight training as well as combat roles. Having a single aircraft for a variety of missions will significantly increase the options for fledgling PN air arms.
 - 5.4.2. In service with the Air National Guard (ANG), the OA-X could provide additional tools that can be used in conjunction with Federal and State agencies for a variety of Homeland Defense and Homeland Security missions including SAR and disaster response, in addition to contributing to a greater Total Force capability.
- 5.5. The OA-X will provide a capability which is independent of the necessity to air refuel and can operate from smaller and more austere airstrips than current aircraft, significantly reducing operating costs and increasing COCOM flexibility in employment.

6.0 DESIRED EFFECTS

- 6.1. The desired effect is to provide a more effective and efficient form of airpower in an IW environment or in a hybrid operation before, during, or after a MCO. The OA-X mission is to provide a more affordable and versatile manned platform which can be fielded in greater numbers to provide a more persistent precision engagement, armed reconnaissance, and command and control capability in a reduced threat environment.
- 6.2. The OA-X will be used to supplement existing strike and armed ISR aircraft in IW environments as well as MCO. In order to effectively supplement or replace the existing array of high performance aircraft for IW scenarios, the OA-X will be able to perform an array of missions, including:
 - 6.2.1. CAS
 - 6.2.2. FAC(A)
 - 6.2.3. Armed Reconnaissance
 - 6.2.4. SCAR
 - 6.2.5. AI
 - 6.2.6. ISR
 - 6.2.7. JTAC Training

- 6.2.8. Primary and advanced flight training to PN or USAF units requiring a companion trainer
- 6.3. Assignment of pilots to OA-X units will help assure expertise in the above missions is preserved within the CAF when legacy aircraft are retired and before significant fielding of the F-35. This will enhance the USAF's ability to source F-35 units with properly experienced aircrew it will have fewer of otherwise.

7.0 NECESSARY CAPABILITIES

- 7.1. **Persistence.** OA-X will possess a non-refueled sortie time of at least five hours; longer than current fighter aircraft, but less than that of the MQ-1/9. Additionally, the ability to operate out of forward locations in austere field conditions will provide commanders with the flexibility to operate throughout a wide area and provide timely responsiveness to ground commanders.
- 7.2. **Precision Engagement.** As the OA-X will be routinely called to deliver weapons, it must carry munitions similar to existing fighter/attack aircraft as well as lower yield and other weapons developed specifically for irregular/hybrid warfare. The OA-X will have the following weapons capabilities in order to effectively provide Precision Engagement:
 - 7.2.1. Aerial gunnery capability, using gun systems employing ammunition commonly available to US forces. Forward firing gun capability is required.
 - 7.2.2. Capability to employ up to two 500-lb class munitions.
 - 7.2.2.1. Must have a laser designator to employ laser-guided weapons.
 - 7.2.2.2. Must have the capability to employ IAMs
 - 7.2.2.3. Must have the capability to generate coordinates with a target location error of Category 2 or better.
 - 7.2.3. Capability to employ 2.75 inch rockets.
 - 7.2.4. Capability to employ overt and covert air-dropped flares (illumination rounds)
 - 7.2.5. At least four weapons stations, two of which may be used for external fuel
 - 7.2.6. May employ direct-fire, laser-guided, low-collateral damage estimate weapons such as the AGM-114 or other precision air to ground missiles.

- 7.3. **ISR.** The OA-X must have an internal or pod-mounted electro-optical/infrared (EO/IR) system at least equivalent to current advanced targeting pods.
- 7.3.1. Capable of laser designation, laser marking, laser spot tracking, and self-derivation of accurate coordinates (see 7.2.2.2.)
 - 7.3.2. The minimum combat load of OA-X will be two fuel tanks, two precision guided munitions or AGMs and the aerial gun(s). The ISR sensor package must not hinder this configuration.”
 - 7.3.3. Capability to record and transmit select full motion video.
 - 7.3.4. Capable of recording embedded data obtained through the weapons system (“gun camera”) and any electro optical (EO)/infrared (IR) sensor installed for the expected duration of combat missions.
- 7.4. **Survivability.** The OA-X will not normally be employed in an environment characterized by a radar threat. However, it could be routinely exposed to IR threats, non-radar guided anti-aircraft artillery, and small-arms fire. Survivability of this aircraft must meet/exceed the defensive capabilities of the MQ-1/9 and CSAR assets which operate in a similar environment. Accordingly, the aircraft must have the following defensive capabilities:
- 7.4.1. Armor protection for engine and cockpit against small arms fire
 - 7.4.2. Self-protection suite:
 - 7.4.2.1. Missile warning and countermeasure systems capable of detecting and mitigating the threat of IR-guided missiles
 - 7.4.2.2. Dispensing system for overt and covert IR countermeasures or chaff bundles
 - 7.4.2.3. Zero-zero ejection seats
 - 7.4.2.4. May have air to air infrared self-defense missile system
 - 7.4.3. The aircraft must have the capability to operate safely and effectively with both crewmembers utilizing night vision goggles.
 - 7.4.4. Self sealing foam gas tanks.
 - 7.4.5. A canopy, fuselage, and wing configuration to maximize visual lookout from both seats.

7.5. **Communications.** The OA-X will possess an advanced communications array, allowing it to more effectively integrate with ground forces and communicate with command and control elements. The OA-X will be equipped with the following secure-line-of-sight and beyond-line-of-sight communications capabilities:

7.5.1. Secure voice capable VHF/AM/FM, UHF, UHF satellite communications. Radios must be compatible with SINCGARS (VHF/FM) and HAVE QUICK II (UHF) frequency hopping systems.

7.5.2. Blue Force Situational Awareness (BFSA) receiver/display system compatible with the BFSA system most widely deployed with Army brigade combat teams at the time the OA-X platform is developed. This capability must include the ability to chat with select BFSA users.

7.5.2.1 Tactical data link capability (LINK-16) compatible with network enabled weapons currently in development.

7.5.2.2 Video downlink capability compatible with Remote Operated Video Enhanced Receiver (ROVER) and One System Remote Video Terminal (OSRVT).

7.5.2.3 Variable message format (VMF) digital communications capability compatible with the various ground FAC/JTAC systems and the F-35.

7.6. **Instruments & Controls.** The OA-X will be a two-seat aircraft requiring only one pilot to operate that will maintain a number of similarities to aircraft types commonly used for training. In foreign service, it is likely that the aircraft will serve as both a primary and advanced flight trainer in addition to its combat roles. The following capabilities are necessary:

7.6.1. Standard instrumentation with Wide Area Augmentation System and Vertical Navigation-certified GPS navigation to allow day/night, all-weather instrument flight, especially into airfields which do not possess navigational aids.

7.6.1.1. Night vision goggles-compatible lighting and instrumentation

7.6.2. Full duplication of all flight controls between both crew positions, with duplication of essential instruments and all sensor displays, including heads up display data.

7.6.2.1. Rear cockpit controls that allow simultaneous tasks (such as sensor control or weapons allocation) without having to be in control of the aircraft.

7.6.2.2. Due to the possibility that there may be a mix of foreign and USAF crewmembers in the same aircraft, it is necessary to an override capability to disable weapons delivery authority from either cockpit.

8.0 ENABLING CAPABILITIES

8.1. Expeditionary Capabilities.

8.1.1. OA-X will have an approximate unrefueled range of 900 miles to in order to attain the ability to self-deploy from continental US basing to an outside continental US base.

8.1.1.1. OA-X must have at least two stations that can be used for external fuel for increased range during self-deployment.

8.1.2. OA-X may be air to air refueling capable either via probe and drogue or high-speed boom.

8.1.3. Air mobility compatibility - OA-X may have the capability to break down structurally (and be restored to flyability within hours) without specialized equipment to enable transport within the cabins of the current strategic airlift fleet (C-17s and C-5s), which aids in rapid deployment over great distances and enhances certain IW and SOF applications.

8.2. **Austere Field Capabilities.** The OA-X may not be dependent on tankers for normal combat operations. Relying on internal and external fuel and the ability to land and refuel at forward bases, the sortie duration should be at least 5 hours. If necessary, future spirals of the aircraft could investigate the inclusion of a refueling system. In addition, the conditions under which the OA-X will operate require the aircraft be relatively easy to maintain and able to conduct a combat turn under austere conditions. The OA-X must have the following operating capabilities:

8.2.1. Capability to operate from unimproved strips, with an effective load of ordnance and fuel

8.2.2. OA-X should require no external launch and recovery support systems

8.2.3. Possess self generating aircrew oxygen capability

8.2.4. Capability for aircrew to accomplish an unassisted partial rearm in the field, using suitable ammunition

8.2.5. Capability to refuel away from home base using fuel systems commonly in use by DoD

8.2.6. Foreign object damage, dust, heat, and humidity protection for all systems in a combat configuration

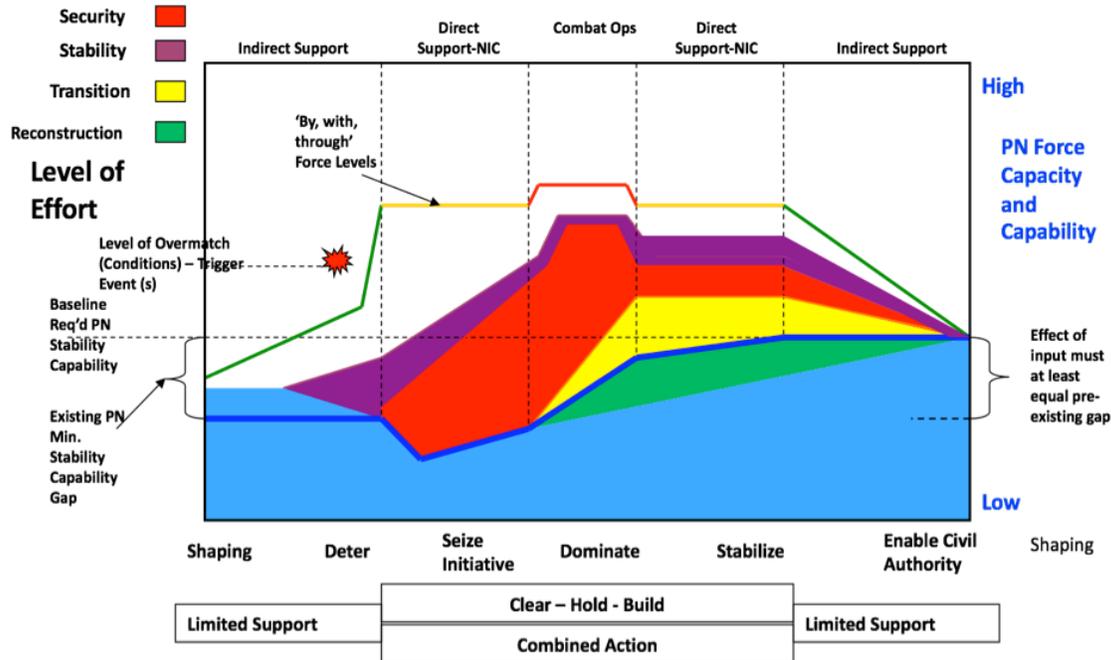
8.3. **Maintenance, Logistics, and Training.** The OA-X must be relatively simple to maintain, particularly for BPC and distributed operations over wide areas. Engine, avionics and mission systems shall be easy to access and maintain within PN capabilities. Accordingly, the OA-X must be a less advanced system which delivers an affordable attack capability in place of higher end U.S. systems. Costs for the OA-X will be shaped largely by the number of operating locations requiring logistical support. Military manpower will be utilized for maintenance, logistics, and training support (particularly when OA-X is used in the BPC role), but contractor maintenance may be used as an interim measure to facilitate a quicker fielding schedule.

9.0 SEQUENCED ACTIONS

9.1. Sequenced actions involve a generic combat deployment and employment scenario for the OA-X. Note that the boundaries of the scenario are not confined to the US Central Command area of responsibility. Similarly, the aircraft are not limited to IW characterizations; the aircraft might well be employed inside MCO, in areas unthreatened by radar surface to air missiles or airborne interceptors. As any conventional conflict has IW aspects, any MCO can benefit from additional air capabilities. OA-X may reasonably be tasked to conduct CAS, counter-SOF, airbase defense, maritime interdiction, and armed reconnaissance missions.

9.2. **Operational Activity Model.** The OA-X will integrate like any other fixed USAF wing platform with traditional C2 concepts and organizations and existing joint TTPs: Operational control (OPCON) will be exercised through the Joint Forces Air Component Commander (JFACC) and the platforms will deconflict using normal air tasking order (ATO) and airspace control measures. Mission planning will require access to theater ATO and airspace control order (ACO) dissemination networks. The OA-X may be tasked as part of a joint team and will require communications capabilities sufficient to coordinate with supported or supporting units. Processing of ATO and ACO information is performed internally using a combination of organic software and common planning tools to transform higher headquarters taskings into useable products for mission crew execution. Prior planning should include a thorough analysis of the anticipated target area including probable adversary courses of action and threat tactics that might affect OA-X operations. The OA-X will employ a modular structure capable of interfacing with multiple weapons and sensors to tailor airframe configuration to mission tasking. Robust, integrated sensors will be used to find, fix, track, and target within a single asset. Precision weapons will give the OA-X the ability to engage targets quickly, thus drastically reducing the sensor-to-shooter timeline. The ability to coordinate fires directly with supported ground units through voice, video, and datalinks with other assets will create synergies

and minimize the ever-present threat of fratricide. Aircraft sensors and communications links to both C2 and exploitation nodes allow near real-time combat assessment and rapid decisions to reconnoiter and engage enemy targets. In addition, as a tool for building partnership capacity with friendly countries, the OA-X will be a more affordable, simpler to employ, and in many cases, a more effective and appropriate asset for fledgling air forces with which the U.S. government seeks closer relationships.



9.3. Indirect Support

9.3.1. **Phase 0 - Shaping.** “Phase Zero” operations for OA-X will consist largely of operations in conjunction with PNs, fulfilling the objective of conducting IW-related efforts “by, with and through” PNs. The ability to provide PNs with aircraft that are similar to currently employed USAF aircraft will allow the U.S. to continue a strategy that has proven effective with other airpower capabilities. Side-by-side operations with USAF and PN OA-X aircraft are possible in a wide range of scenarios, from training through maritime interdiction, counternarcotics, antipiracy operations and border patrol. The USAF will be capable of providing both initial and continuing training for PN air arms utilizing the OA-X.

9.3.1.1. OA-X units will be trained for a variety of missions. All OA-X units- Active Duty, Reserve, and ANG- will be trained to conduct CAS, AI, SCAR and armed ISR missions very similar to current A-10 and MQ-

1/9 training. Some units, or some crews within units, will also be qualified to conduct FAC(A) and CSAR operations, and some AF Special Operations Command (AFSOC)-associated units will have an additional set of tasks which involve the training of foreign operators in a combat aviation advisory role. Some or all OA-X units will also conduct training with US Special Operations Command to better support SOF in addition to general purpose forces (GPF).

9.3.1.2.OA-X units in the Reserve or ANG can expect to be routinely employed in support of other state and federal agencies outside DoD. These aircraft will be employed for drug interdiction, SAR, border enforcement, maritime patrol and post-disaster survey.

9.4. Deployment. When needed, OA-X units can deploy as any other fighter or attack squadron. OA-X units will not need and cannot employ tanker support for the aircraft and must make their transit to the destination using multiple legs. Alternately, the OA-X may be partially dismantled (wings removed or folded) and transported via strategic airlift directly to the destination or to a nearby aerial port of debarkation. If self-deployed, the aircraft may be fully or partially combat loaded, giving the deployed unit the capability to conduct immediate combat operations.

9.5. Direct Support/Combat Operations. As outlined above, OA-X will be able to conduct a variety of combat operations in a number of environments:

9.5.1. **CAS/FAC(A).** OA-X is particularly well suited to conducting CAS operations in a low-threat environment where persistence is more critical than the quantity of weapons delivered. Without external tanks, the OA-X approximates the combat load of an F-16, F-18 or AV-8B but has significantly more endurance. Similarly, the slower airspeed and high maneuverability of the aircraft allow effective weapons deployment in rapid succession, even in restricted terrain, airspace, or weather conditions. As equipped, the datalink, line of sight communications, and ROVER capability allow close integration with ground forces, while UHF satellite communications will allow effective communications to be maintained in mountainous terrain. A FAC(A) qualified crewmember and an appropriately configured aircraft will also be able to integrate artillery and other supporting fires, allowing effective indirect fire from forward operating bases (FOB), ships, aircraft, or units which may not even be within radio line-of-sight.

9.5.2. **Interdiction and SCAR.** Even in the absence of ground forces, OA-X can conduct interdiction and SCAR operations against enemy elements, including maritime forces or special operations forces. The communications array on board the aircraft, combined with the dual-crew

configuration if desired, will also allow effective SCAR integration with a variety of aircraft, both fixed and rotary wing.

- 9.5.3. **CSAR.** The OA-X is an excellent fit for “Sandy” and rescue escort operations. Long endurance, a variety of communications and a varied combat load make it well-suited to support of rotary wing or tilt rotor rescort. The gun armament of the aircraft can be effective both for suppression and for the engagement of moving vehicles. It may also be possible for OA-X to pick up single aircrew from roads or short take off/landing fields if the rear seat is flown empty for the mission, a capability demonstrated by the A-1 in Vietnam.
- 9.5.4. **Armed Reconnaissance.** Armed reconnaissance sorties, occasionally referred to as “armed overwatch” or “nontraditional ISR” are a staple of fixed-wing operations today in Iraq and Afghanistan. Though much of this mission is conducted by UAS, OA-X, equipped with similar sensor capabilities, will be able to provide the flexibility to conduct similar missions at a greatly reduced cost than current manned assets.
- 9.5.5. **Air Scout (USMC model).** Air Scout missions are a mix of SCAR missions with an additional C2 role – a commander is airborne with authority over both air and ground forces used for the operation. Additionally, the ability to conduct the entire find-fix-target-track-engage-assess (F2T2EA) kill chain without interruption or the need to call in other assets (thus not losing fleeting targets) is a key enabler for effective counter-insurgency and counter-terrorism missions.
- 9.6. **Basing Options.** The OA-X have a significantly wider range of basing options than high-performance aircraft, requiring shorter runways without the high weight-bearing requirements demanded by fighter aircraft. It should also be possible for the OA-X to conduct refueling and partial rearm at any FOB with sufficient runway. Any FOB which has suitable fuel is also likely to have linked ammunition, allowing the aircrew to rearm the gun system. The ability of the OA-X to conduct refueling and rearming away from home base will effectively extend its endurance and increase the number of options available for supporting ground forces.
- 9.7. **Crew Options.** The normal crew complement for the OA-X is normally one. However, mission complexity or length could call for a crew consisting of two pilots or a pilot/combat systems officer combination. Either crew position may be used to open up the options available to the flight. Similarly, a host nation crewmember or rider from a supported unit may be carried, or a US instructor may fly with a PN pilot.

10.0 COMMAND RELATIONSHIPS / ARCHITECTURE

- 10.1. HQ USAF is responsible for the Title 10 responsibilities associated with maintaining, crewing and sustaining a light attack capability. In this respect, the OA-X is no different from any other combat aircraft in the inventory.
- 10.2. HQ ACC is the primary force provider of combat airpower to America's warfighting commands. The OA-X will be integrated into ACC's portfolio of capability alongside other manned fighter/attack aircraft.
- 10.3. OA-X squadrons will deploy as expeditionary fighter squadrons under the operational control of the gaining theater's commander, Air Force forces (COMAFFOR). Tactical control will be exercised through that theater's joint/combined force air component commander and administrative control through the COMAFFOR. Missions will be executed under the air tasking order for that respective theater. Each OA-X unit will follow the theater's special instructions and adhere to the guidance found in the airspace control order.

APPENDIX A: Abbreviations and Acronyms

ACC- Air Combat Command
AFSOC- Air Force Special Operations Command
AGM- air to ground missile
AI- Air interdiction
ACO- Airspace control order
ANG- Air National Guard
ATO- Air tasking order
BFSA- Blue Force Situational Awareness
BPC- Building Partnership Capacity
C2- Command and control
CAF- Combat Air Forces
CAS- Close air support
CCDR- Combatant Commander
COCOM- Combatant Command
COMACC- Commander, Air Combat Command
COMAFFOR- Commander, Air Force Forces
CSAR- Combat search and rescue
EO- Electro optical
FAC(A)- Forward air controller (airborne)
FOB- Forward operating base
FID- Foreign internal defense
F2T2EA- Find-Fix-Target-Track-Engage-Assess
GPF- General-Purpose Forces
GPS- Global positioning system
HQ- Headquarters
IAM- Inertially-Aided Munition
IR- Infrared
ISR- Intelligence, Surveillance and Reconnaissance
IW- Irregular Warfare
JFACC- Joint Force Air Component Commander
JTAC- Joint terminal attack controller
LGB- Laser guided bomb
MCO- Major combat operations
OEF- Operation ENDURING FREEDOM
OIF- Operation IRAQI FREEDOM
NTISR- Nontraditional intelligence, surveillance, and reconnaissance
PN- Partner nation
ROVER- Remote operated video enhanced receiver
SAR- Search and rescue
SCAR- Strike coordination and reconnaissance
SOF- Special operations forces
TTP – Tactics, techniques, and procedures
UAS- Unmanned aerial system

APPENDIX B: References

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