

RQ-1 Predator/MQ-9 Reaper

Unmanned Aerial Vehicles
June 2019

Program Briefing

The RQ-1A Predator was the US Air Force's first medium endurance UAV. The Predator stemmed from the CIA's earlier Tier 1 Medium Endurance Unmanned Aerial Vehicle (MAE-UAV) that was deployed for surveillance missions over the former Yugoslavia in 1993-94. It was based on the General Atomics Gnat 750 air vehicle.

The upgraded version, the Gnat-750-TE Predator won the DoD's Tier 2 competition with a development award in January 1994 and in 1997 was redesignated as the RQ-1A Predator. The Predator was first deployed over Bosnia in the summer of 1995. The US Air Force assumed operational control of the Predator on 2 September 1996. The armed version of the RQ-1 Predator is designated as the **MQ-1B Predator A**.

The first series production contract was awarded to General Atomics on 20 August 1997. The US Air Force had a requirement for 12 systems and 101 air vehicles, but this number steadily increased and totaled 320 through FY10. General Atomics delivered its 100th Predator on 5 February 2004. In 2007, the Air Force reported it had lost about 49 of 90 operational Predators due to combat and accidents. In 2009, the Air Force announced plans to terminate MQ-1 Predator acquisition in favor of switching entirely to the MQ-9 Reaper. The final MQ-1 Predator was delivered to the Air Force on 3 March 2011 with about 320 delivered. Production of the Predator A ended in early 2016 after delivery of two Italian aircraft. The US Air Force in 2016 announced that the last of the MQ-1 Predator force would be retired by 2018.

A new version of the Predator was announced in 2000, the Predator-B which was first acquired by NASA



for research purposes. In its hunter-killer version for the Air Force, it is designated as the **MQ-9A Reaper**. The Air Force had been acquiring the MQ-9A alongside the MQ-1A Predator but in 2009 decided to shift entirely to the Reaper. Procurement through FY11 was 130 air vehicles. Under the FY19 budget plan, the USAF objective is 433 aircraft with new procurement continuing through FY23.

The US Army awarded a contract in May 2003 for 3 IGNAT UAVs based on the Predator to help define its UAV requirements for a divisional/corps level UAV called the Extended Range Multipurpose UAV (ERMP). A Predator derivative called **MQ-1C Grey Eagle** (formerly Sky Warrior) won the Army **ERMP** competition in 2005 against the Hunter II, a derivative of the Israeli Heron. The Army plans to acquire 233 air vehicles through FY20.

The US Marine Corps in 2018 decided to begin to acquire the MQ-9 Reaper based on experiences in the use of USAF aircraft in Afghanistan. A total of 9 are expected to be funded in 2020-2022.

Italy became the first export customer for Predator. Britain leased and borrowed Predators for operations in Iraq in early 2004 and in 2006 ordered two air vehicles, followed by an order for the RQ-9 Reaper in 2007 with plans to deploy two squadrons; further orders were made in 2016 un-

der the Protector program. France began acquiring the Reaper in 2013. The Predator is a contender in a variety of foreign competitions; the Netherlands and Spain have been cleared for sales. General Atomics has developed the Predator-XP export variant to make it more suitable for export and likely candidates include the UAE and Saudi Arabia.

General Atomics and Lockheed Martin teamed to offer a derivative of the Predator called the **Mariner** (a.k.a. Predator B-ER) as a contender for the US Navy's BAMS (Broad Area Mission Surveillance) requirement but it lost to the Global Hawk in April 2008. The Predator-B version was selected by NASA's Earth Science Enterprise for research applications as the **Altair** and first flew in June 2003; it was the first civil UAV to win an FAA airworthiness certificate which facilitates its use in national airspace. The Predator is also used by the Border Patrol with eight in service by 2012. General Atomics has developed a jet-powered derivative of the Predator, called **Predator C** and **Avenger**, for the USAF MQ-X Next Generation UAS program and a navalized version called Sea Avenger for the US Navy UCLASS/CBARS requirement (see MQ-25 Stingray report). The US Air Force began acquiring small numbers of this version in 2011. General Atomics has also proposed an extended-range version of Reaper.

Executive

Big Safari Program Office
Aeronautical Systems Center
Air Force Materiel Command
Wright Patterson AFB, OH

The Tier 1 element of this program was managed by the Central Intelligence Agency.

Manufacturer

General Atomics
Aeronautical Systems Div.
PO Box 85608
San Diego, CA 92186-9784
tel: (619) 455-4649

Variants

RQ-1A Predator—This is the designation for the baseline system, including the RQ-1K air vehicle. DERF funding from FY02 is being used to reconfigure all RQ-1A systems into the MQ-1B configuration.

RQ-1B Predator—This is the Block 1 system using the improved RQ-1L air vehicle.

MQ-1B Predator—This is the upgraded RQ-1B system which enables the air vehicle to employ the Hellfire missile.

MQ-1C Warrior Block 0—This is the Army version of the Predator, introduced as a stop gap in 2007 before the baseline Block 1 was available. It has many of the same features as the Block 1 but uses the USAF/General Atomics GCS rather than the AAI One System GCS, uses a C-band data-link instead of the faster high data rate Tactical Common Data-Link, lacks the automatic landing system and some other features.

MQ-1C Grey Eagle Block 1—This is the baseline Army version of the Predator and first flew in December 2007. This Predator variant for the Army uses the AAI “One System” as its GCS. Each system includes 12 air vehicles, five GCS and associated equipment.

MQ-1C Improved Grey Eagle—This is the upgraded version first flown in July 2013 with 50% more fuel capacity and powered by a Lycoming DEL-120 diesel.

RQ-1K Block 5 Predator—This is the baseline version of the UAV used in the reconnaissance role.

MQ-1L Predator Block 10—This is the upgraded version of the RQ-1K Block 5 modified to carry and launch the Hellfire missile in the hunter-killer role. This was officially accepted for service use in February 2005 several years after having actually gone into action. The initial production standard was called Block 5

which remained in production through 2003 when the FY02 aircraft shifted to Block 10 configuration. The Block 20 configuration introduces wingtip extensions for better hot/high operations.

MQ-9A Reaper Spiral 0—Formerly Predator-B, this is the enlarged version of the UAV and the baseline version of the new type.

MQ-9A Reaper Spiral 1—This is version integrated the Hellfire missile system on the platform.

MQ-9A Reaper Spiral 2—This is the improved version with higher gross weight, redundant flight avionics, digitally controlled engine, sensor and stores management computer, MIL-STD-1760 data bus and improved human-machine interface.

Subsystems

Launch System

Launcher

The Gnat-750 uses conventional aircraft-style launch and landing. Launch uses a conventional undercarriage. Up to 1997, the Predator

had a mean time between crashes of 1,500 to 1,700 flight hours.

A study conducted in 1996 by Sierra Nevada Corp. concluded that the Predator could be integrated into the

UAV Common Automatic Recovery System (U-CARS). General Atomic completed a three-year study of the electro-magnetic aircraft launch system (EMALS) for potential use to

launch the Predator from aircraft carriers.

The Predator/Reaper takes off and lands from a runway like a conventional aircraft. A Predator system includes one Ground Control Station

(GCS), four air vehicles, a Trojan Sprit II communications suite and 635 personnel.

Electronics

Sensors

The **Tier 1 Gnat-750** is remotely piloted with several options. The UAV can be preprogrammed for autonomous operations and can incorporate a GPS/INS option for improved accuracy. The datalink for flight control is a C-band, frequency selectable system with an optional digital video channel. The data link antenna on the Tier 1 was located in a tear-drop-shaped pod over the fuselage, developed by a team of *Questech*, *General Atomics* and *GEC-Marconi* on the basis of a \$1.4 million US Army contract. The Army as part of the Joint Precision Strike program first successfully tested this system during a one-hour demonstration on 2 December 1993. The data was passed, via a manned relay aircraft, from the El Mirage, CA test site to the Pentagon. The uplink antenna is housed in a dorsal pod. This served as the basis for the system on the Tier 2. During operations over Yugoslavia in 1994, the CIA used a RG-8 two-man powered glider as a data relay station when the UAV was beyond line of sight. The Predator B uses a C-band antenna for line-of-sight connections to the ground control station and a Ku-band satellite uplink for over-the-horizon control, and L-3 Communications of Rancho Bernardo is the supplier of the **RQ-1W** PPSL (Predator Primary Satellite Link). *EMS Technologies* provides the Ku-band CDL switch network.

The **RQ-1A Predator** Tactical Endurance UAV system includes EO IR and GFP-SAR sensor capabilities and UHF and GFP Ku-band satellite communications. The Predator employs a Litton inertial navigation/GPS system for guidance. The Predator has a sensor payload of 450 lb. The Skyball electro-optical pay-

load includes a 14TS imaging infrared camera and daylight camera provided by *Versatron/Wescam*.

The four of the original MQ-1B Predator hunter-killers were fitted with the AN/AAS-44 "Kosovo Ball", an E/O sensor package with integral laser rangefinder in June 1999. Although some consideration was given to fitting the remainder of the RQ-1 fleet with this, instead, the plan was to use the Raytheon AN/AAS-52 multi-spectral targeting system (MTS-A) on all MQ-1B Predators, and Raytheon has also developed the improved MTS-B

The initial *Westinghouse* synthetic aperture radar (SAR) was not fitted until 1995; it is nose mounted and is stabilized in two axes. This SAR has a 10- to 50-degree field of view in elevation and 150 degrees in azimuth; it has a one-foot resolution and covers an 8,000-foot swath of terrain from an altitude of 25,000 feet. The US Army Night Vision Lab was handling management of the SAR sensor. It was first deployed during Bosnia operations in March 1996.

Due to data incompatibilities, the SAR data was transmitted through a commercial *Unisys* Ku-band satellite link and a *Magnavox* UHF satellite link. The new fuselage configuration permits a 30-inch satellite communications antenna to be fit inside the fuselage. The data link for the system had been sole-sourced to *Unisys*. The air vehicle is also fitted with a line-of-sight downlink with a range of about 100 mi.

In 2002, the Air Force funded the Little Weasel ELINT payload for the Predator which consists of a F-16 Harm Targeting System (HTS) which will link with Rivet Joint aircraft and F-16 Block 50 fighters used

in the SEAD role to improve the collection of data on enemy SAMs.

The RQ-1A system uses a *Northrop Grumman* AN/ZPQ-1 TESAR tactical endurance synthetic aperture radar. The TESAR operates in the Ku-band with a swath width of 800m, a resolution of 0.3 m, a range of four to 11 km, and an MTBF of 700 hours. A total of 27 ZPQ-1 were funded in FY98 and 24 in FY99 with all but six supplied prior to 1 October 2001. In January 2006, it was reported that the USAF was removing the TESAR from the MQ-1L Predator A UAVs armed with the Hellfire.

The recent systems used *Lockheed Martin* wide band satellite link (originally Loral Communication Systems of Salt Lake City).

To autonomously launch and designate the semi-active laser guided Hellfire missile, the Predator is fitted with a laser target designator (LTD) manufactured by *Raytheon*, Ft. Worth, TX. The first four add-on systems were funded out of the FY99 budget, and at a later date, the LTD became integral with the UAV.

The Predator has been tested with a classified SIGINT package, code named Bat Fish. In 2008, the Air Force selected the Northrop Grumman ASIP-1C (Airborne Signals Intelligence Payload) for the MQ-1 Predator which is already in use on the U-2C aircraft and RQ-4 Global hawk UAV.

The MQ-9A Reaper is fitted with the AN/APY-8 Lynx SAR/GMTI system. The MQ-1C Sky Warrior was originally planned to be fitted with the Lynx II, but in April 2008, the Army decided to adopt the Northrop Grumman Starlite SAR/GMTI instead of the General Atomics Lynx II.

In 1996, the Air Force began efforts to develop a hyperspectral imaging system for foliage penetration.

Data dissemination for the Predator is handled by the Trojan Spirit III dissemination system, with one system per unit. *Boeing* supplies the Data Exploitation, Mission Planning, and Communications (DEMPC) workstation. In 2003, Boeing and General Atomics began work on a system to link the Predator to the E-3 AWACS and AH-64 Apache attack helicopter. General Atomics is also examining control of the Predator from the P-3 Orion.

In early 2009, the USAF announced plans to fit the MQ-9 Reaper with the *Sierra Nevada* Gorgon Stare, an electro-optical device which permits the air vehicle to observe 12 different scenes simultaneously.

Flight Control

The Tier 1 system employs a General Atomics ground control station mounted in an S280 shelter. The system employs a C-band tracking antenna. In its initial configuration, the Gnat-750 depends on a data relay aircraft once the UAV is beyond the range of the ground station.

The baseline system uses a GA-ASI **RQ-1P** common ground control station manufactured by General

Atomics, with an intelligence workstation (DEMPC) provided by *Boeing*. To provide non-line of sight control, the first three Predator systems employed the AN/TSQ-190(V) Trojan Spirit II SATCOM link, and in this configuration were designated as RQ-1U. The upgraded Block 1 system is the **RQ-1Q**. The common ground station demonstrated the capability to control two air vehicles simultaneously during a demonstration in July 1998. There are two configurations of the GCS, deployable and fixed-site. The Trojan Spirit satellite link was replaced by the L-3 Communications **RQ-1W** PPSL (Predator Primary Satellite Link). The Block 20 GCS is designated as MD-1A, while the LRCS (Launch and Recovery Control Station) is the MD-1B. The MD-1C is the CDCS Containerized Dual Control System and the MD-1D is the Multi-Aircraft Control Station. In July 2007, General Atomics demonstrated the next-generation Advanced Cockpit GCS with development to be completed in 2009.

In 2008, the Air Force planned to test a prototype optical sense-and-avoid system on the Predator with an aim to field an operational suite by 2009.

The Army's MQ-1C Predator is designed to be operated with the AAI

One System GCS though the first "Block 0" aircraft use the USAF GCS. The ERMP One System is designed with an automatic take-off and landing feature that was first tested in October 2008.

In FY99, the Congress provided supplemental mod funding to equip five Predators with the UAV Automatic Recovery System (UCARS).

Work has also been undertaken on a Tactical Control System (TCS), a small forward deployed control station designed to interface with Predator, Pioneer and other UAVs and to provide the forward commander with immediate video output. This system has become a bone of contention between the Air Force and the Army, the Army favoring it, the Air Force opposing its interference with the GCS. In June 1997, the NSWC awarded *Battlespace Inc.* a sole-source contract for engineering services in support of the TCS. A TCS was successfully tested with the Predator at San Clemente Island in January 1998.

General Atomics has designed a variety of optional GCS configurations, including a Portable Ground Control Station (PGCS) and a High Mobility GCS (HMGCS) which mounts two PGCS in a HMMWV S-788 shelter.

Propulsion

The Gnat-750 Tier 1 is powered by a 65-hp Rotax 586 piston engine, powering a conventional pusher propeller. The constant speed, reversible pitch, folding propeller is made of carbon or Kevlar composites. The 120-hp KH800T, a horizontally opposed, liquid-cooled, four cylinder, four-stroke, turbocharged and after-cooled piston engine is an option, and was the type planned for the Tier 2 Predator, however, it was fitted with a Rotax 912 85-hp engine. Starting in 1998, the air vehicles use a Rotax 914 105-hp turbocharged engine.

General Atomics is also developing another optional powerplant, a heavy fuel engine using diesel technology to enable the engine to burn JP-5 and diesel fuel instead of gasoline. The engine entered prototype testing in 1985 with a demonstrated power of 50 hp. Power increases to 75 hp are expected with design maturation and normal aspiration, and 150 hp is expected to be possible by adding a turbocharger. However, in 1997-98, attention shifted to a three-

cylinder opposed piston 150-hp design based on a WW2 German Jumo design.

The MQ-9A Predator B is powered by a Honeywell TPE331-10T turboprop engine though the Predator B002 prototype was scheduled to demonstrate a Williams FJ44-2A turboprop.

The Army's Grey Eagle Block 1 is powered by a Thielert multi-fuel Centurion 1.7 135-hp engine. The Improved Grey Eagle is powered by a Lycoming DEL-120 diesel.

Warhead

The MQ-1B can carry up to four AGM-114 Hellfire missiles. The MQ-9A Predator B has four weapons stations, the inner stations capable of carrying 500- to 600-lb weapons, and the outer stations having a lesser capacity. It uses the Exelis BRU-71/A ejector rack. Tests in 2005 included the BLU-108 Sensor Fuzed Weapon, and the CLAW (clean lightweight area weapon), a derivative of the BLU-108. Other weapons that have been acquired include the Raytheon

Griffin and Lockheed Martin Scorpion small guided missiles. In 2013, there were initial discussions about the possible use of air-to-air weapons including the AIM-9X and AIM-120 AMRAAM. The MQ-9 has been cleared to use the GBU-38 JDAM.

The MQ-1 has also been fitted with the Stinger air defense missile for self-defense.

In 2002, the Predator was tested with the Naval Research Laboratory Finder, a 57-lb parasite UAV that can

be fitted with various sensors such as a hyper-spectral sensor for atmospheric testing that could be used for chemical weapons detection. Predator has also served as the test-bed for the Raytheon Silent Eyes, a parasite UAV dropped from the host UAV to conduct reconnaissance missions at lower altitudes when cloud cover obscures the target or when more positive target identification is required before prosecuting an attack.

Specifications

| | <u>Gnat-750 (Tier 1)</u> | <u>RQ-1 Predator</u> | <u>MQ-9 Predator B</u> |
|------------------------|--------------------------|----------------------|------------------------|
| Length: | 16.4 ft (five m) | 26.6 ft (8.1 m) | 36 ft (10.9m) |
| Wingspan: | 35.3 ft (10.7 m) | 41.6 ft (12.6 m) | 66 ft (20.1m) |
| Empty weight: | 441 lb (200 kg) | n/a | n/a |
| Payload (nose/wing): | 132/330 lb (60/150 kg) | 500 lb (225 kg) | |
| Gross take-off weight: | 1,140 lb (518 kg) | 2,300 lb (1,040kg) | 6,400 lb (2,900 kg) |
| Max. level speed: | 140 kt (255 km/h) | 140 kt (255 km/h) | 210 kt (380 km/h) |
| Endurance: | 48 hr | 40 hr | 24 hr |
| Max. altitude: | 25,000 ft (7,600 m) | 25,000 ft (7,600 m) | 45,000 ft (13,700 m) |
| Max. radius: | 1,740 mi (2,800 km) | 500 mi + (800 km +) | |

Contract Briefs

The following is a listing of contract announcements made by the Pentagon involving the award of, or modification to, unclassified prime

contracts with a base value of \$7 million or more since the beginning of FY09 (10/1/08).

| Date | Contract Number | Obligation | Details |
|----------------------|------------------|--------------|--|
| <u>AeroVironment</u> | | | |
| 10/30/2008 | W58RGZ-05-C-0338 | \$5,810,622 | FFP contract action issued by the AMCOM to procure research, development, test & evaluation digital data link effort for the Raven RQ-11B unmanned aircraft System. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 1/31/2011. Program involvement: RQ-11 Raven, SUAS. RDT&E involvement: 0305204A. |
| 01/20/2009 | W58RGZ-05-C-0338 | \$17,060,508 | FFP and CPFF contract action issued by the AMCOM to procure a digital data link upgrade for the Raven RQ-11B Unmanned Aircraft System and FY09 engineering services and accounting for contract services. The contract is scheduled to be completed by 10/30/2010. Program involvement: RQ-11 Raven, SUAS. |
| 01/30/2009 | W58RGZ-05-C-0338 | \$39,003,452 | FFP and CPFF contract action issued by the AMCOM to definitize NTE FY 09 Systems, initial spares packages, and contractor logistics support for the Raven RQ-11B Unmanned Aircraft System. The contract is scheduled to be completed by 1/31/2010. Program involvement: RQ-11 Raven, SUAS. |
| 06/01/2009 | H92222-08-D-0001 | \$7,000,000 | modification to an existing ID/IQ contract action issued by the SOCOM for updated DDL compliant Raven B Small UAV spares and retrofit kits in support of the U.S. Special Operations Command Program Executive Office. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 8/6/2011. Program involvement: RQ-11 Raven, SUAS. |

| | | | |
|------------|------------------|--------------|---|
| 05/10/2010 | W58RGZ-05-C-0338 | \$11,198,967 | FFP contract action issued by the ACC for 113 full rate production Raven systems, 113 Raven initial spare packages, and Raven engineering services. The contract is scheduled to be completed by 1/30/2011. Program involvement: RQ-11 Raven, SUAS. |
| 01/25/2011 | W58RGZ-05-C-0338 | \$7,800,003 | FFP contract action issued by the AMCOM for procurement of 919 Marine Corps Raven Module 2 upgrade sets. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 4/30/2011. Program involvement: RQ-11 Raven, SUAS. |
| 01/31/2011 | W58RGZ-05-C-0338 | \$7,623,215 | CPFF contract action issued by the AMCOM for two month of Raven operator training and six months of Raven contractor logistics support. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 7/31/2011. Program involvement: RQ-11 Raven, SUAS. |
| 04/06/2011 | W58RGZ-05-0338 | \$14,773,816 | FFP contract action issued by the ACC for 248 digital data link retrofit kits for the Raven unmanned aerial system. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 10/9/2012. Program involvement: RQ-11 Raven, SUAS. |
| 05/23/2011 | W58RGZ-11-C-0055 | \$8,373,995 | FFP contract action issued by the ACC for 67 Army Digital Data Link Raven Systems and 67 Army Raven Digital Data Link spares package for the Army Raven small unmanned aircraft system. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 5/14/2012. Program involvement: RQ-11 Raven, SUAS. |
| 09/07/2011 | W58RGZ-05-C-0338 | \$15,909,962 | CPFF contract action issued by the ACC for the modification of an existing contract to provide logistical support for the small unmanned aircraft system. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 10/31/2013. Program involvement: RQ-11 Raven, SUAS. |
| 10/05/2011 | W58RGZ-11-C-0055 | \$6,874,175 | FFP contract action issued by the ACC for the modification of an existing contract to procure Raven Digital Link Systems and Initial Spares Packages for the United States Air Force. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 2/29/2012. Program involvement: RQ-11 Raven, SUAS. |
| 03/02/2012 | W58RGZ-11-C-0004 | \$8,852,535 | CPFF contract action issued by the ACC for the modification of an existing contract to supply logistics services for the Small Unmanned Aircraft System. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 10/14/2012. Program involvement: RQ-11 Raven, SUAS. |
| 03/13/2012 | W58RGZ-12-C-0066 | \$11,095,873 | CPFF contract action issued by the ACC for the contractor logistics support in support of the Raven small unmanned aircraft system. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 2/28/2015. Program involvement: RQ-11 Raven, SUAS. |
| 05/29/2012 | W58RGZ-11-C-0055 | \$15,813,405 | FFP contract action issued by the ACC for the modification of an existing contract to procure Raven Digital Data Link Gimball Systems and initial spares packages. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 4/30/2013. Program involvement: RQ-11 Raven, SUAS. |
| 07/26/2012 | W58RGZ-12-C-0066 | \$6,820,125 | CPFF contract action issued by the ACC for the modification of an existing contract to procure support services for the Raven gimbal. Work will be performed in Simi Valley, CA. The contract is scheduled to be completed by 2/28/2013. Program involvement: RQ-11 Raven, SUAS. |
| 09/14/2015 | W911QY-15-C-0102 | \$9,049,306 | FFP, FMS contract action issued by the ACC for the small UAV RQ-11B Raven analogy system. The contract is scheduled to be completed by 5/11/2016. Program involvement: RQ-11 Raven, SUAS. |
| 07/26/2018 | W911QY-18-C-0147 | \$17,500,123 | firm-fixed-price foreign military sales contract action issued by the Army Contracting Command for RQ-20B Puma AE II US Digital Data Link M1 and RQ-12A WASP Block IV US Digital Data Link M1 systems and support. Work will be performed in Monrovia, CA. The contract is scheduled to be completed by 7/25/2019. Program involvement: RQ-20, RQ-12. |
| 09/30/2018 | FA4890-18-D-0010 | \$2,800,000 | increment as part of a \$13,000,000, single-award, indefinite delivery/indefinite-quantity contract action issued by the Acquisition Management and Integration Center for Raven RQ-11B small unmanned aircraft systems (SUAS). This contract satisfies recurring requirements for RQ-11B SUAS, |

spares kits, ancillary equipment, and recurring related training. The location of performance is US Southern Command Area of Responsibility which includes Central America, South America and the Caribbean nations. The contract is scheduled to be completed by 9/28/2023. Program involvement: RQ-11 Raven.

ArgenTech Solutions

| | | | |
|------------|------------------|-------------|---|
| 03/29/2019 | N00164-19-D-JQ32 | \$2,667,722 | increment as part of a \$44,998,104 firm-fixed-price, indefinite-delivery/indefinite-quantity contract action issued by the Naval Surface Warfare Center to procure full-time-equivalents for field service representative support for Gimbaled Sensor Systems. These requirements are in direct support of the Electro-Optic Infrared (EO/IR) projects managed by Naval Surface Warfare Center Crane Electro-Optic Technology Division, including Operation Enduring Freedom, Operation Inherent Resolve and missions in Africa Command. Each of these projects uses a variation of the Multi-Spectral Targeting System Family of EO/IR Sensors. The field service representative efforts will support the repairs and sustainment of sensors utilized on the Army Gray Eagle and Sky Warrior MQ-1 unmanned aerial vehicles. Work will be performed in various locations. The contract is scheduled to be completed by 3/31/2024. Program involvement: Gray Eagle, MQ-1, RQ-1. |
|------------|------------------|-------------|---|

BAE Systems, Information & Electronic Systems Integration

| | | | |
|------------|------------------|--------------|--|
| 01/05/2012 | W15P7T-12-C-C009 | \$12,290,244 | FFP, CPFF contract action issued by the ACC for the procurement of T-Pod Systems on the MQ-1C Unmanned Aircraft System. The contract is scheduled to be completed by 12/27/2012. Program involvement: MQ-1, RQ-1. |
| 05/29/2019 | | \$39,459,120 | undefinitized contract action issued by the for the France MQ-9 Foreign Military Sales (FMS) Sensor Pod effort. This contract provides for the production of FMS sensor pods, which will be utilized on the French Air Force MQ-9 Block 5 aircraft and Block 30 Mobile Ground Control Stations. The contract is scheduled to be completed by 4/30/2023. Program involvement: MQ-9, RQ-1. |

Battlespace Flight Services

| | | | |
|------------|------------------|---------------|---|
| 10/03/2011 | FA4890-07-C-0006 | \$104,179,468 | FFP, CPAF contract action issued by the ACC for organizational maintenance support for the predator MQ-1 aircraft and related systems. Work will be performed in Creech AFB, NV; Whiteman AFB, MO; and sites worldwide. The contract is scheduled to be completed by 10/31/2012. Program involvement: MQ-1. |
| 09/26/2012 | FA4890-07-C-0006 | \$26,801,188 | modification contract action issued by the AMIC for operations and maintenance services to support the Predator medium altitude long endurance unmanned (MQ)-1 remotely piloted aircraft at Creech AFB, NV. The contract is scheduled to be completed by 12/31/2012. Program involvement: MQ-1. |
| 12/14/2012 | FA4890-07-C-0006 | \$412,084,746 | modification contract action issued by the AMIC to provide MQ-1 O-level operation and maintenance support services. Work will be performed in Creech AFB, NV. The contract is scheduled to be completed by 1/31/2013. Program involvement: MQ-1. |
| 01/16/2013 | FA4890-07-C-0006 | \$13,740,356 | modification contract action issued by the ACC for MQ-1 O-level operation and maintenance services. Work will be performed in Creech AFB, NV; and Whiteman AFB, MO. The contract is scheduled to be completed by 3/31/2013. Program involvement: MQ-1, RQ-1. |

CAE, CAE USA

| | | | |
|------------|------------------|--------------|---|
| 08/29/2014 | FA4890-13-C-0104 | \$20,714,725 | modification to a FFP contract action issued by the AMIC for the MQ-1/9 Contract Aircrew Training and Courseware Development. Work will be performed in Creech AFB, NV; Holloman AFB, NM; March ARB, CA; and Hancock ANGB, NY. The contract is scheduled to be completed by 9/30/2015. Program involvement: MQ-1, RQ-1. |
| 09/30/2015 | FA4890-13-C-0104 | \$3,714,004 | increment as part of a \$33,931,498 modification to a previously awarded contract action issued by the ACC for exercising option year two for the MQ-1/9 aircrew training and courseware development contract. Work will be performed in Creech AFB, NV; Holloman AFB, NM; March ARB, CA; |

| | | | |
|------------|------------------|--------------|---|
| | | | and Hancock ANGB, NY. The contract is scheduled to be completed by 9/30/2016. Program involvement: RQ-1, MQ-1. |
| 10/01/2015 | FA4890-13-C-0104 | \$3,714,004 | increment as part of a \$33,931,498 modification to a previously awarded contract action issued by the ACC for the MQ-1/9 aircrew training and courseware development contract. Work will be performed in Creech AFB, NV; Holloman AFB, NM; March ARB, CA; and Hancock ANGB, NY. The contract is scheduled to be completed by 9/30/2016. Program involvement: MQ-1. |
| 09/01/2016 | FA4890-13-C-0104 | \$0 | increment as part of a \$37,889,432 modification (P00037) to exercise an option on a previously awarded contract action issued by the Air Combat Command for MQ-1 and MQ-9 aircrew training and courseware development. Work will be performed in Creech AFB, NV; Holloman AFB, NM; March Air Reserve Base, CA; and Hancock Air National Guard Base, NY. The contract is scheduled to be completed by 9/30/2017. Program involvement: MQ-1, MQ-9. |
| 10/02/2017 | FA4890-13-C-0104 | \$42,910,414 | firm-fixed-price modification contract action issued by the Air Combat Command for the MQ-1 and aircrew training and courseware development contract. Work will be performed in Creech AFB, NV; Holloman AFB, NM; March Air Reserve Base, CA; and Hancock Air National Guard Base, NY. The contract is scheduled to be completed by 9/30/2018. Program involvement: MQ-1. |
| 08/31/2018 | FA4890-13-C-0104 | \$0 | increment as part of a \$15,447,372 firm-fixed-price modification contract action issued by the Air Combat Command for the MQ-1&9 aircrew training and courseware development contract. Work will be performed in Creech AFB, NV; Holloman AFB, NM; March Air Reserve Base, CA; and Hancock Air National Guard Base, NY. The contract is scheduled to be completed by 1/31/2019. Program involvement: MQ-1, MQ-9. |

Crew Training International

| | | | |
|------------|------------------|--------------|---|
| 10/04/2010 | FA4890-08-C-0006 | \$0 | increment as part of a \$16,338,175 contract action issued by the ACC for MQ-1/MQ-9 contract aircrew training and courseware development for personnel in support of unmanned aircraft systems operations as required at Creech AFB. The contract is scheduled to be completed by 10/31/2011. Program involvement: MQ-1, MQ-9. |
| 09/16/2011 | FA4890-08-C-0006 | \$6,864,843 | fixed-price with cost-reimbursable line items contract action issued by the ACC for increased workload for MQ-1 and MQ-9 academic, simulator, and flying training requirements at Holloman AFB, NM. Work will be performed in Creech AFB, NV; Holloman AFB, NM; March AFB, CA; and Hancock Field, NY. The contract is scheduled to be completed by 9/30/2012. Program involvement: MQ-1, MQ-9. |
| 10/01/2012 | FA4890-08-C-0006 | \$26,629,629 | fixed-price with cost-reimbursable line items contract action issued by the ACC for the MQ-1/MQ-9 contract aircrew training and courseware development for personnel in support of unmanned aircraft systems operations. Work will be performed in Creech AFB, NV; Holloman AFB, NM; March ARB, CA; and Hancock ARB, NY. The contract is scheduled to be completed by 9/30/2013. Program involvement: MQ-1, MQ-9. |

General Atomics, Aeronautical Systems

| | | | |
|------------|------------------|--------------|---|
| 02/01/2010 | FA8620-05-G-3028 | \$12,804,804 | CPFF term contract action issued by the ASC to provide two MQ-9 Reaper test aircraft to support immediate and future development tests needs on the Reaper Increment I program. The contract is scheduled to be completed by 2/28/2011. Program involvement: RQ-1, MQ-9 Reaper. RDT&E involvement: 0305219F. |
| 04/20/2010 | W58RGZ-09-C-0151 | \$17,046,878 | CPIF contract action issued by the AMCOM for support of the extended range/multi-purpose system production readiness test asset contract. The contract is scheduled to be completed by 9/30/2011. Program involvement: ER/MP UAS, Sky Warrior, RQ-1. RDT&E involvement: 0305204A. |
| 04/30/2010 | W58RGZ-09-C-0151 | \$15,215,147 | CPIF contract action issued by the AMCOM for the exercise option for contract W58RGZ-09-C-0151 in support of the extended range/multi-purpose system production readiness test asset. The contract is scheduled to be completed by 4/9/2011. Program involvement: ER/MP UAV, RQ-1. RDT&E involvement: 0305204A. |

| | | | |
|------------|------------------|---------------|--|
| 05/03/2010 | W58RGZ-05-C-0069 | \$5,800,000 | CPIF contract action issued by the AMCOM for continued performance of the system development demonstration in support of the extended range/multi-purpose unmanned aircraft system. The contract is scheduled to be completed by 12/31/2010. Program involvement: ER/MP UAV, RQ-1. RDT&E involvement: 0305204A. |
| 05/05/2010 | FA8620-05-G-3028 | \$7,070,000 | contract action issued by the ASC for a revision to the ground control station modernization program to improve pilots/sensor operator ergonomics through a cockpit hardware architecture. The contract is scheduled to be completed by 5/31/2011. Program involvement: RQ-1. |
| 05/14/2010 | W58RGZ-10-C-0068 | \$195,510,000 | FPIF contract action issued by the AMCOM for the procurement of supplemental hardware, low-rate initial production in support of the ER/MP UAS and hardware. The contract is scheduled to be completed by 11/30/2012. Program involvement: ER/MP UAS, RQ-1. |
| 05/19/2010 | W58RGZ-09-C-0153 | \$38,465,000 | CPIF, CPFF contract action issued by the AMCOM for logistics support, performance-based logistics transition for the extended range multi-purpose unmanned aircraft system Quick Reaction Capability 1. Work will be performed in Adelanto, CA (34%); Hunt Valley, MD (24%); Poway, CA (18%); and 2 other locations (24%). The contract is scheduled to be completed by 5/19/2011. Program involvement: ER/MP UAS, RQ-1. |
| 06/03/2010 | FA8620-05-G-3028 | \$1,000,000 | increment as part of an \$8,982,515 contract action issued by the ASC to provide for MQ-9 auto take-off and landing capability modification to the system development and demonstration bridge effort. The contract is scheduled to be completed by 6/30/2011. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0305219F. |
| 06/15/2010 | FA8620-05-G-3028 | \$24,044,533 | contract action issued by the ASC for a quantity of four MQ-9 Reaper aircraft (two production aircraft and two ground maintenance trainers). The contract is scheduled to be completed by 6/30/2011. Program involvement: MQ-9, RQ-1. |
| 06/22/2010 | FA8620-05-G-3028 | \$94,285,469 | modification contract action issued by the ASC for the MQ-1 Predator aircraft and MD-1 ground control station retrofit kits. The contract is scheduled to be completed by 6/30/2011. Program involvement: RQ-1 Predator. |
| 08/25/2010 | F33657-02-G-4035 | \$3,595,959 | increment as part of a \$7,848,501 modification contract action issued by the ASC for the MQ-9 System Development and Demonstration Increment I program. The contract is scheduled to be completed by 8/31/2011. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0305219F. |
| 09/09/2010 | FA8620-05-G-3028 | \$38,267,658 | modification contract action issued by the ASC to provide a quantity of six MQ-9 Reaper aircraft. The contract is scheduled to be completed by 9/30/2011. Program involvement: MQ-9 Reaper, RQ-1. |
| 09/15/2010 | FA8620-05-G-3028 | \$51,509,634 | contract action issued by the ASC to procure FY08 MQ-9 Reaper Aircraft Initial Spares, Deployment Readiness Packages, and Ground Support Equipment. The contract is scheduled to be completed by 9/30/2011. Program involvement: MQ-9 Reaper, RQ-1. |
| 09/23/2010 | FA8620-05-G-3028 | \$242,355,513 | modification contract action issued by the ASC to support contract logistics support of the Predator/Reaper. The contract is scheduled to be completed by 9/30/2011. Program involvement: Predator/Reaper, RQ-1. |
| 11/19/2010 | W58RGZ-05-C-0069 | \$31,915,000 | CPIF contract action issued by the AMCOM for the extension of continuing and additional work for the system development and design contract for the extended range/multi-purpose unmanned aerial system. The contract is scheduled to be completed by 12/31/2010. Program involvement: ER/MP UAS, RQ-1. RDT&E involvement: 0305219A. |
| 11/30/2010 | FA8620-10-G-3038 | \$5,412,518 | increment as part of an \$18,072,110 contract action issued by the ASC for contractor logistics support for the Italian Air Force MQ-9 Reaper program. The contract is scheduled to be completed by 12/31/2011. Program involvement: RQ-1, MQ-9 Reaper. |
| 12/17/2010 | W58RGZ-11-C-0001 | \$85,499,772 | CPFF contract action issued by the AMCOM to provide logistics support for the Warrior A/Warrior Block 0 unmanned aircraft system at four sites outside the continental United States. The contract is scheduled to be completed by 12/16/2011. Program involvement: Sky Warrior UAV, RQ-1. RDT&E involvement: 0305219A. |
| 12/23/2010 | FA8620-10-G-3038 | \$33,267,600 | contract action issued by the ASC to provide flight operation support, reliability and maintainability enhancements, maintenance data collection/entry |

| | | | |
|------------|------------------|---------------|---|
| | | | and deport field maintenance. The contract is scheduled to be completed by 12/31/2011. Program involvement: RQ-1. |
| 02/28/2011 | W56RGZ-10-C-0068 | \$335,504,000 | FPIF contract action issued by the AMCOM for the purchase of system hardware applicable to the Extended Range Multi-Purpose Unmanned Aircraft System. The contract is scheduled to be completed by 12/31/2012. Program involvement: ER/MP UAS, RQ-1. |
| 03/03/2011 | W58RGZ-09-C-0153 | \$64,285,000 | CPFF, CPIF contract action issued by the ACC for product support, logistical support and sustainment operations to the Extended Range/Multi-Purpose Quick Reaction Capability Unmanned Aircraft System. Work will be performed in Poway, CA; Adelanto, CA; Palmdale, CA; and 2 other locations. The contract is scheduled to be completed by 11/7/2011. Program involvement: ER/MP UAS, RQ-1. |
| 03/21/2011 | FA8620-10-G-3038 | \$50,260,246 | FFP contract action issued by the ASC for six MQ-9 Reaper production aircraft and two MQ-9 Reaper aircraft that will be utilized as ground maintenance devices. The contract is scheduled to be completed by 3/31/2012. Program involvement: RQ-1, MQ-9 Reaper. |
| 05/19/2011 | W58RGZ-09-C-0153 | \$8,930,823 | CPFF, CPIF contract action issued by the ACC for the procurement of additional spare hardware support for the MQ-1C Gray Eagle contract logistics support. The contract is scheduled to be completed by 1/18/2012. Program involvement: RQ-1, MQ-1C Gray Eagle. |
| 05/24/2011 | FA8620-05-G-3028 | \$13,721,224 | CPFF contract action issued by the ASC for the purchase of 8 Linux processors, 41 improved display kits and associated spares for the ground control stations under the Predator/Reaper program. The contract is scheduled to be completed by 5/31/2012. Program involvement: RQ-1 Predator, MQ-9 Reaper. |
| 08/12/2011 | FA8620-05-G-3028 | \$8,685,940 | CPIF, FFP contract action issued by the ASC for MQ-1 spares and retrofit kits. The contract is scheduled to be completed by 8/31/2012. Program involvement: MQ-1, RQ-1. RDT&E involvement: FA8620-05-G-3028. |
| 08/19/2011 | FA8620-05-G-3028 | \$11,563,779 | CPIF, FFP contract action issued by the ASC to purchase MQ-9 Reaper; development of aircraft structural improvement program master plan; and high definition integrated sensor control system. The contract is scheduled to be completed by 8/31/2012. Program involvement: MQ-9 Reaper, RQ-1. RDT&E involvement: 0205219F. |
| 09/28/2011 | FA8620-10-G-3038 | \$21,618,560 | CPFF contract action issued by the ASC for expedited contractor support that is mandatory to meet urgent service operational requirements for the Predator and Reaper programs. The contract is scheduled to be completed by 9/30/2012. Program involvement: RQ-1 Predator, Reaper. RDT&E involvement: 0205219F. |
| 09/29/2011 | FA8620-10-G-3038 | \$65,077,287 | CPIF contract action issued by the ASC for the Block 30 retrofit for 31 fixed ground control stations; 43 mobile ground control stations (MGCS) and 26 Predator mission aircrew training systems. The contract is scheduled to be completed by 9/30/2012. Program involvement: RQ-1 Predator. |
| 10/05/2011 | W58RGZ-11-C-0143 | \$84,816,854 | CPFF contract action issued by the ACC for the logistics and hardware services in support of Gray Eagle First Unit Equipped system hardware. The contract is scheduled to be completed by 3/27/2013. Program involvement: Gray Eagle, RQ-1. |
| 10/17/2011 | W58RGZ-09-C-0136 | \$30,279,377 | CPFF contract action issued by the ACC for the modification of an existing contract for additional engineering services for the MQ-1C Gray Eagle Unmanned Aircraft System program. The contract is scheduled to be completed by 8/30/2012. Program involvement: MQ-1 Gray Eagle, RQ-1. RDT&E involvement: 0305219A. |
| 11/10/2011 | W58RGZ-09-C-0153 | \$15,171,136 | CPFF, CPIF contract action issued by the ACC for the modification of an existing contract to support the MQ-1C Gray Eagle unmanned aircraft system quick reaction capability. The contract is scheduled to be completed by 1/7/2012. Program involvement: RQ-1, Gray Eagle. RDT&E involvement: 0305219A. |
| 12/08/2011 | FA8620-10-G-3038 | \$319,236,484 | FFP contract action issued by the ASC for 40 MQ-9 Block 1 aircraft, and 40 aircraft containers. The contract is scheduled to be completed by 9/30/2013. Program involvement: MQ-9, RQ-1 Reaper. |
| 12/30/2011 | W58RGZ-12-C-0001 | \$12,000,000 | CPFF contract action issued by the ACC for the support services for Warrior A/Block 0 unmanned aircraft systems. The contract is scheduled to be |

| | | | |
|------------|------------------|---------------|--|
| | | | completed by 12/17/2013. Program involvement: Warrior, RQ-1. RDT&E involvement: 0305219A. |
| 01/17/2012 | W58RGZ-09-C-0153 | \$30,342,272 | CPIF contract action issued by the ACC for support of the MQ-1C Gray Eagle unmanned aircraft system quick reaction capability. The contract is scheduled to be completed by 5/7/2012. Program involvement: RQ-1, MQ-1 Gray Eagle. |
| 02/09/2012 | FA8620-10-G-3038 | \$8,143,903 | CPIF contract action issued by the ASC for MQ-1 digital video integration. The contract is scheduled to be completed by 5/30/2014. Program involvement: MQ-1, RQ-1. |
| 02/28/2012 | FA8620-10-G-3038 | \$16,870,978 | CPFF contract action issued by the ASC for contractor logistics support for the Italian Air Force MQ-9 Reaper. Work will be performed in Poway, CA; and Italy. The contract is scheduled to be completed by 5/31/2013. Program involvement: MQ-9, RQ-1. |
| 03/02/2012 | FA8620-10-G-3038 | \$38,398,042 | FPIF and FFP contract action issued by the ASC to procure two modified Block 1 MQ-9 Aircraft (FPIF) and two Aircraft Containers (FFP). The contract is scheduled to be completed by 11/30/2013. Program involvement: MQ-9 Reaper, RQ-1 Predator. |
| 05/10/2012 | W58RGZ-12-C-0075 | \$141,832,994 | CPIF contract action issued by the ACC for the services in support of the MQ-1C Gray Eagle unmanned aircraft systems. The contract is scheduled to be completed by 5/7/2013. Program involvement: MQ-1, Gray Eagle. |
| 07/02/2012 | W58RGZ-09-C-0136 | \$8,600,982 | CPFF contract action issued by the ACC for the modification of an existing contract to support the MQ-1C Gray Eagle unmanned aircraft system. The contract is scheduled to be completed by 9/30/2013. Program involvement: RQ-1 Predator, MQ-1 Gray Eagle. RDT&E involvement: 0305219A. |
| 07/11/2012 | W58RGZ-12-C-0057 | \$410,981,211 | FPI contract action issued by the ACC for the procurement of Gray Eagle systems, including initial spares, plus additional hardware. The contract is scheduled to be completed by 3/31/2015. Program involvement: RQ-1 Predator, MQ-1 Gray Eagle. |
| 07/13/2012 | FA8620-10-G-3038 | \$120,551,310 | FFP contract action issued by the ASC to provide MQ-9 Reaper spares and ground support equipment. The contract is scheduled to be completed by 3/13/2015. Program involvement: MQ-9 Reaper, RQ-1 Predator. |
| 08/14/2012 | FA8620-10-G-3038 | \$26,767,748 | FFP, CPIF contract action issued by the AFMC for the Predator Primary Data Link configuration upgrades on MD-1A/B ground control station retrofit kits. The contract is scheduled to be completed by 12/31/2014. Program involvement: RQ-1. |
| 08/28/2012 | FA8620-10-G-3038 | \$23,538,776 | contract action issued by the ASC for program management and urgent services for the Predator/Reaper program. The contract is scheduled to be completed by 8/28/2012. Program involvement: RQ-1 Predator/Reaper. |
| 10/02/2012 | W58RGZ-12-C-0075 | \$102,588,732 | CPIF contract action issued by the ACC for the services in support of the Gray Eagle unmanned aircraft system. The contract is scheduled to be completed by 5/7/2013. Program involvement: RQ-1 Gray Eagle. |
| 11/05/2012 | FA8620-10-G-3038 | \$125,487,106 | contract action issued by the AFLCMC for 10 MQ-9 modified Block 1 aircraft. The contract is scheduled to be completed by 11/28/2014. Program involvement: MQ-9, RQ-1. |
| 11/08/2012 | FA8650-13-C-1543 | \$7,034,404 | CPFF, R&D contract action issued by the AFRL for the continuous look/attack management for the Predator software updates. The contract is scheduled to be completed by 11/7/2016. Program involvement: RQ-1. RDT&E involvement: 0205219F. |
| 11/30/2012 | FA8620-10-G-3038 | \$12,583,958 | option contract action issued by the AFLCMC for the MQ-9 Reaper aircraft fiscal 2010/2011 retrofits. The contract is scheduled to be completed by 9/30/2015. Program involvement: MQ-9, RQ-1. |
| 12/20/2012 | FA8620-10-G-3038 | \$42,940,780 | CPFF, FFP contract action issued by the AFLCMC for contractor logistics support for the United Kingdom Royal Air Force Phase 1 and 2 for MQ-9 operations. Work will be performed in Poway, CA; Creech AFB, NV; United Kingdom; and Afghanistan. The contract is scheduled to be completed by 3/31/2015. Program involvement: MQ-1, MQ-9. |
| 12/21/2012 | FA8528-13-C-0002 | \$337,143,633 | FFP, CPFF and T&M contract action issued by the AFLCMC to procure logistics services for the RQ-1 and MQ-9 Predator/Reaper Remotely Piloted Vehicle program. The contract is scheduled to be completed by |

| | | | |
|------------|------------------|---------------|---|
| | | | 12/31/2013. Program involvement: RQ-1, MQ-9. RDT&E involvement: 0305219F. |
| 12/27/2012 | FA8620-10-G-3038 | \$28,282,516 | FPFF contract action issued by the AFLCMC for logistics support for the RQ-1/MQ-9 Reaper Unmanned Aerial Systems program. Work will be performed in El Mirage, CA; and China Lake, CA. The contract is scheduled to be completed by 12/31/2013. Program involvement: RQ-1, MQ-9. |
| 04/11/2013 | FA8620-10-G-3038 | \$18,251,274 | FFP contract action issued by the AFLCMC for MQ-1/MQ-9 organic depot activation. Work will be performed in Hill AFB, UT; Warner-Robins AFB, GA; and Tinker AFB, OK. The contract is scheduled to be completed by 4/4/2015. Program involvement: RQ-1, MQ-9. |
| 05/07/2013 | W58RGZ-12-C-0075 | \$110,261,703 | modification to a previously awarded CPIF contract action issued by the ACC for Gray Eagle Unmanned Aircraft Systems product support and fleet sustainment operations. Work will be performed in , Afghanistan. The contract is scheduled to be completed by 9/30/2014. Program involvement: RQ-1, MQ-1 Gray Eagle. |
| 06/25/2013 | FA8620-10-G-3038 | \$28,289,068 | CPIF contract action issued by the AFLCMC for implementation of the Aircraft Structural Integrity Program Phase I to manage the structural integrity of the MQ-9 fleet throughout the aircraft life cycle. The contract is scheduled to be completed by 9/25/2016. Program involvement: MQ-9 Reaper, RQ-1 Predator. |
| 07/11/2013 | FA8620-05-G-3028 | \$23,951,449 | modification to a CPIF and FFP contract action issued by the AFLCMC for additional 904.6 systems release tasks for the MQ-9 Hunter and Killer System Development and Demonstration (SDD) bridge effort. The contract is scheduled to be completed by 7/31/2014. Program involvement: RQ-1, MQ-9. RDT&E involvement: 0305220F. |
| 08/01/2013 | FA8620-10-G-3038 | \$39,455,726 | CPFF contract action issued by the AFLCMC for the MQ-9 Technology Insertion Technical Solution. The contract is scheduled to be completed by 5/31/2016. Program involvement: RQ-1, MQ-9. RDT&E involvement: 0205219F. |
| 08/12/2013 | FA8620-10-G-3038 | \$26,222,034 | undefinitized contract action issued by the AFLCMC for Extended Range Phase 2 to provide Extended Range capabilities for the Block 1 MQ-9 aircraft. The contract is scheduled to be completed by 8/12/2015. Program involvement: RQ-1, MQ-9. RDT&E involvement: 0205219F. |
| 08/16/2013 | FA8620-10-G-3038 | \$11,352,795 | FFP contract action issued by the AFLCMC for engineering change proposal (ECP) to calendar year 2011 spares and support equipment. The contract is scheduled to be completed by 3/28/2016. Program involvement: RQ-1. |
| 08/22/2013 | W58RGZ-13-C-0127 | \$30,481,905 | CPIF, option eligible, multi-year contract action issued by the ACC for one MQ-1C Gray Eagle Composite Maintenance System Trainer (CMST) suite of equipment. Work will be performed in Fort Huachuca, AZ. The contract is scheduled to be completed by 8/31/2014. Program involvement: RQ-1, MQ-1 Gray Eagle. |
| 09/12/2013 | FA8620-10-G-3038 | \$12,844,738 | CPFF contract action issued by the AFLCMC for the MQ-9 stationary targeting improvements. The contract is scheduled to be completed by 1/13/2016. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0205219F. |
| 09/13/2013 | W58RGZ-13-C-0109 | \$199,746,895 | FFP, option-eligible, non-multi-year contract action issued by the ACC to provide MQ-1C Gray Eagle fiscal year 2013 full rate production and fiscal 2012 hardware backfill requirements applicable to the Gray Eagle UAS. The contract is scheduled to be completed by 9/30/2014. Program involvement: RQ-1, MQ-1 Gray Eagle. |
| 09/25/2013 | W58RGZ-13-C-0136 | \$70,163,380 | CPIF, non-option-eligible, non-multi-year contract action issued by the ACC to conduct MQ-1C Gray Eagle 4.3.2 software development and depot repair of related spares. The contract is scheduled to be completed by 9/30/2014. Program involvement: RQ-1 Reaper, MQ-1 Gray Eagle. RDT&E involvement: 0305219A. |
| 09/26/2013 | W58RGZ-12-C-007 | \$86,556,544 | CPIF contract action issued by the ACC for fiscal year 2013 Gray Eagle performance-based logistics product support for Block 1 program of record and quick reaction capability. The contract is scheduled to be completed by 9/30/2014. Program involvement: RQ-1, MQ-1C Gray Eagle. |

| | | | |
|------------|------------------|---------------|---|
| 09/27/2013 | W58RGZ-12-C-0075 | \$86,556,544 | non-multi-year, no option, CPFF contract action issued by the ACC for the fiscal year 2013 Gray Eagle Performance-Based Logistics product support for Block 1 program of record and quick reaction capability. The contract is scheduled to be completed by 9/30/2014. Program involvement: RQ-1, MQ-1C. |
| 09/30/2013 | FA8620-10-G-3038 | \$49,813,377 | NTE undefinitized contract action issued by the AFLCMC for France's MQ-9 Reaper urgent request program. The contract is scheduled to be completed by 7/15/2015. Program involvement: RQ-1, MQ-9. |
| 10/15/2013 | FA8620-10-G-3038 | \$377,400,000 | NTE delivery order, undefinitized contract action issued by the AFLCMC for fiscal 2013 MQ-9 Reaper production. The contract is scheduled to be completed by 7/29/2016. Program involvement: RQ-1, MQ-9 Reaper. |
| 11/01/2013 | FA8620-10-G-3038 | \$27,607,349 | NTE undefinitized contract action issued by the AFLCMC for France's MQ-9 UAS Contractor Logistics Support Phase I program. The contract is scheduled to be completed by 10/31/2014. Program involvement: RQ-1, MQ-9. |
| 12/06/2013 | W58RGZ-13-C-0109 | \$40,253,105 | modification contract action issued by the ACC for the Gray Eagle full rate production option exercise applicable to the Gray Eagle Unmanned Aircraft System. The contract is scheduled to be completed by 9/30/2016. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 12/13/2013 | W58RGZ-14-C-0008 | \$110,453,269 | CPFF contract action issued by the ACC for continuing logistic services to the Warrior unmanned aircraft system. Work will be performed in , Afghanistan; and Poway, CA. The contract is scheduled to be completed by 12/15/2015. Program involvement: RQ-1, Warrior. |
| 12/24/2013 | FA8528-14-C-0001 | \$362,193,866 | CPFF contract action issued by the AFLCMC for Predator (MQ1)/Reaper (MQ9) Unmanned Aerial Systems contractor logistic support sustainment. The contract is scheduled to be completed by 12/31/2014. Program involvement: RQ-1, MQ-9, Predator, Reaper. |
| 02/05/2014 | FA8620-10-G-3038 | \$117,286,467 | NTE undefinitized FFP contract action issued by the AFLCMC for the MQ-9 Accelerated Extended Range effort which will field 38 MQ-9 Extended Range aircraft. The contract is scheduled to be completed by 7/7/2016. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0205219F. |
| 02/21/2014 | W58RGZ-12-C-0057 | \$18,109,374 | modification contract action issued by the ACC for changes to the Universal Ground Control Station. The contract is scheduled to be completed by 11/30/2015. Program involvement: RQ-1, MQ-1C. |
| 03/20/2014 | W58RGZ-10-C-0068 | \$10,523,125 | modification contract action issued by the ACC for five remote ground data terminals, five local ground data terminals, and initial related spares for the Gray Eagle Unmanned Air Vehicle System. The contract is scheduled to be completed by 11/30/2018. Program involvement: MQ-1, Gray Eagle. |
| 05/07/2014 | W58RGZ-12-C-0075 | \$296,941,937 | modification contract action issued by the ACC for Gray Eagle overall logistics support and fleet sustainment operations, including spares and repairs. Work will be performed in Poway, CA; and Afghanistan. The contract is scheduled to be completed by 5/7/2015. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 06/26/2014 | FA8620-10-G-3038 | \$15,293,442 | FFP contract action issued by the AFLCMC for the MQ-9 Fuel Bladder Retrofit Kits, Time Compliance Technical Orders (TCTO) and initial spares. The contract is scheduled to be completed by 3/6/2017. Program involvement: RQ-1, MQ-9. |
| 09/10/2014 | FA8620-10-G-3038 | \$40,906,190 | CPFF contract action issued by the AFLCMC for development of requirements description documents for the MQ-9 Reaper Block 1 Unmanned Aerial System (UAS) and the MQ-9 Reaper Block 5 UAS. The contract is scheduled to be completed by 9/8/2017. Program involvement: MQ-9 Reaper, RQ-1. RDT&E involvement: 0205219F. |
| 09/30/2014 | FA8620-10-G-3038 | \$38,907,316 | CPFF, FFP order (00057) under a basic ordering agreement contract action issued by the AFLCMC for 62 ground data terminals, 50 MQ-9 C-Bands diplexer kits, spares and support equipment. The contract is scheduled to be completed by 5/30/2017. Program involvement: RQ-1, MQ-9. RDT&E involvement: 0205219F. |
| 10/30/2014 | FA8620-10-G-3038 | \$16,064,628 | modification to exercise an option on a delivery order for an existing BOA contract action issued by the WPAFB for France's MQ-9 Contractor Logistics Support (CLS) Phase 2. Work will be performed in Poway, CA; and |

| | | | |
|------------|------------------|---------------|--|
| | | | Niger. The contract is scheduled to be completed by 10/31/2015. Program involvement: RQ-1, MQ-9. |
| 12/15/2014 | W58RGZ-14-C-0008 | \$17,000,000 | increment as part of a \$114,598,215 modification contract action issued by the ACC to continue contractor logistics for the Warrior unmanned aircraft system. Work will be performed in Poway, CA; and Afghanistan. The contract is scheduled to be completed by 12/16/2015. Program involvement: RQ-1 Warrior. |
| 12/23/2014 | FA8528-15-C-0001 | \$375,212,717 | CPFF contract action issued by the AFLCMC for Predator (MQ1)/Reaper (MQ9) unmanned aerial systems contractor logistic support. The contract is scheduled to be completed by 12/31/2015. Program involvement: RQ-1, MQ-9. |
| 01/16/2015 | FA8620-10-G-3038 | \$43,291,564 | FFP contract action issued by the AFLCMC for MQ-9 Reaper field retrofit. The contract is scheduled to be completed by 7/5/2017. Program involvement: RQ-1, MQ-9 Reaper. |
| 02/04/2015 | FA8620-10-G-3038 | \$279,144,933 | FPIF, FFP contract action issued by the AFLCMC for MQ-9 Reaper production. The contract is scheduled to be completed by 9/30/2017. Program involvement: RQ-1, MQ-9 Reaper. |
| 03/16/2015 | W58RGZ-13-C-0109 | \$132,660,931 | modification contract action issued by the ACC to acquire 19 Gray Eagle unmanned aircraft, 19 SATCOM Air Data Terminals, one lot of initial spares, and one lot of ground support equipment. The contract is scheduled to be completed by 3/31/2017. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 03/31/2015 | FA8620-10-G-3038 | \$19,999,364 | CPFF modification to a previously awarded contract action issued by the AFLCMC for MQ-9 organic depot activation logistics support analysis. The contract is scheduled to be completed by 3/31/2017. Program involvement: RQ-1, MQ-9. |
| 04/01/2015 | W58RGZ-13-C-0109 | \$47,700,000 | modification contract action issued by the ACC for the full-rate production II Gray Eagle unmanned aircraft system - acquisition of ground equipment. The contract is scheduled to be completed by 7/30/2017. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 04/30/2015 | W31P4Q-15-D-0003 | \$82,679,703 | CPFF contract action issued by the ACC for engineering and technical services for the Joint System Integration Laboratory technological support to the unmanned aircraft systems fleet. The contract is scheduled to be completed by 4/30/2019. Program involvement: RQ-1. |
| 05/07/2015 | W58RGZ-12-C-0075 | \$84,838,567 | modification contract action issued by the ACC for Gray Eagle performance-based logistics product support for Block 1 program of record and quick reaction capability. The contract is scheduled to be completed by 10/23/2015. Program involvement: RQ-1, MQ-1C Gray Eagle. |
| 05/08/2015 | FA8620-10-G-3038 | \$37,962,062 | NTE modification to a previously awarded contract action issued by the AFLCMC to provide 64 MQ-9 Electrical Safety Improvement Program retrofit kits on 64 USAF SOCOM, Air Combat Command, and ANG Block 1 aircraft. The contract is scheduled to be completed by 4/30/2017. Program involvement: MQ-9, RQ-1. |
| 05/20/2015 | FA8620-10-G-3038 | \$72,068,072 | FPI, FFP contract action issued by the AFLCMC to produce eight additional MQ-9 Reaper Block 5 production configuration aircraft. The contract is scheduled to be completed by 12/31/2017. Program involvement: RQ-1, MQ-9. |
| 05/21/2015 | FA8620-10-G-3038 | \$23,075,907 | FFP, delivery order (0087) under basic ordering agreement contract action issued by the AFLCMC delivery order (0087) under basic ordering agreement FA8620-10-G-3038 for MQ-9 Block 20A Lynx SAR retrofit kits. The contract is scheduled to be completed by 5/21/2017. Program involvement: RQ-1, MQ-9. |
| 06/16/2015 | FA8620-10-G-3038 | \$21,070,132 | FFP, CPIF order on a previously awarded contract action issued by the AFLCMC for Predator Mission Aircrew Training Systems (PMATS). The contract is scheduled to be completed by 1/14/2018. Program involvement: RQ-1 Predator. |
| 06/23/2015 | W58RGZ-13-C-0109 | \$121,350,000 | modification contract action issued by the ACC for 19 Gray Eagle unmanned aerial vehicles and 19 satellite communications air data terminals. The contract is scheduled to be completed by 9/30/2018. Program involvement: MQ-1C Gray Eagle, RQ-1. |

| | | | |
|------------|------------------|--------------|---|
| 07/09/2015 | W58RGZ-13-C-0110 | \$14,649,257 | modification contract action issued by the ACC for fiscal 2015 option hours for engineering services efforts to field a post FOT&E to support the Gray Eagle. The contract is scheduled to be completed by 7/10/2016. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 07/27/2015 | FA8620-10-G-3038 | \$10,529,304 | CPFF, FFP, undefinitized contract action issued by the AFLCMC for Italy Contractor Logistics Support Phase IV+ program. The contract is scheduled to be completed by 7/26/2016. Program involvement: RQ-1. |
| 09/14/2015 | FA8620-10-G-3038 | \$51,470,225 | modification to a basic ordering agreement contract action issued by the AFLCMC for the MQ-9 Reaper aircraft structural integrity program. The contract is scheduled to be completed by 6/30/2020. Program involvement: RQ-1, MQ-9, Reaper. |
| 09/16/2015 | FA8620-10-G-3038 | \$12,066,646 | undefinitized contract action modification to a previously awarded contract action issued by the AFLCMC provide an additional 60 MQ-9 electrical safety improvement program retrofit kits on 60 USAF SOCOM, ACC and ANG aircraft. The contract is scheduled to be completed by 9/15/2017. Program involvement: RQ-1, MQ-9. |
| 09/17/2015 | FA8620-10-G-3038 | \$9,372,348 | increment as part of a \$29,527,049 modification to a previously awarded contract action issued by the AFLCMC for retrofit of medium-altitude unmanned aerial systems Block 30 ground control stations. The contract is scheduled to be completed by 7/31/2019. Program involvement: RQ-1. |
| 09/29/2015 | W58RGZ-12-C-0075 | \$14,787,475 | modification contract action issued by the ACC for the Gray Eagle performance-based logistics support for the Block 1 program. The contract is scheduled to be completed by 10/23/2015. Program involvement: RQ-1, MQ-1C Gray Eagle. |
| 09/30/2015 | W58RGZ-13-C-0109 | \$9,250,320 | modification contract action issued by the ACC to procure universal ground control stations and universal satellite communications ground data terminals for the Gray Eagle unmanned aircraft system. The contract is scheduled to be completed by 9/30/2017. Program involvement: RQ-1, MQ-1C Gray Eagle. |
| 10/22/2015 | W58RGZ-12-C-0075 | \$38,155,365 | modification contract action issued by the ACC for MQ-1C Gray Eagle unmanned aircraft systems performance-based logistics support for the Block 1 program of record and Special Operations aviation regiments. The contract is scheduled to be completed by 10/23/2016. Program involvement: RQ-1, MQ-1C Gray Eagle. |
| 10/26/2015 | FA8620-10-G-3038 | \$19,070,219 | delivery order 0113 of the basic ordering agreement contract action issued by the WRIGHT for MQ-9 contractor logistics support (CLS) Phase 3. Work will be performed in Poway, CA; and Niamey, Niger. The contract is scheduled to be completed by 12/31/2016. Program involvement: RQ-1, MQ-9. |
| 12/18/2015 | FA8528-16-C-0001 | \$27,787,416 | increment as part of a \$338,231,976 cost-plus-fixed-fee contract action issued by the AFLCMC for Predator (MQ-1) and Reaper (MQ-9) unmanned aerial systems contractor logistic support. Contractor will provide program management, logistics support, configuration management, technical manual and software maintenance, contractor field service representative support, inventory control point management, flight operations support, depot repair, and depot field maintenance. The contract is scheduled to be completed by 12/31/2016. Program involvement: MQ-1, MQ-9, RQ-1. |
| 12/23/2015 | FA8620-15-G-4040 | \$57,401,850 | undefinitized contract action issued by the AFLCMC for MQ-9 contractor logistics support. Work will be performed in CA; and worldwide locations. The contract is scheduled to be completed by 3/31/2017. Program involvement: MQ-9, RQ-1 Reaper. |
| 01/19/2016 | FA8620-15-G-4040 | \$43,740,596 | undefinitized contract action issued by the AFLCMC for France's MQ-9 second system. The contract is scheduled to be completed by 10/31/2017. Program involvement: MQ-9, RQ-1. |
| 01/22/2016 | FA8620-15-G-4040 | \$11,898,735 | increment as part of a \$34,028,813 order (0014) from basic ordering agreement contract action issued by the Air Force Life Cycle Management Center to develop and field the Air Force Special Operations Command MQ-9 Medium Altitude Long Endurance Tactical (MALET) Lead-Off Hitter (LOH) software line. Contractor will establish, define, and grow a process to rapidly field capabilities. Included in this effort is to address activities driving software changes such as: software defect corrections, threats, |

| | | | |
|------------|------------------|---------------|---|
| | | | policy or doctrine driven, safety, interoperability, and software changes resulting from hardware upgrades. Work will be performed in Poway, CA; Clovis, NM; and Ft. Walton Beach, FL. The contract is scheduled to be completed by 2/28/2018. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0204219F/1105219BB . |
| 01/27/2016 | FA8620-15-G-4040 | \$2,002,999 | increment as part of a \$17,727,907 modification (0020) to a previously awarded contract action issued by the Air Force Life Cycle Management Center for MQ-9 system software operational test support and final fielding release. Contractor will provide support activities for follow-on operational test and evaluation of the MQ-9 operational flight program. The contract is scheduled to be completed by 11/30/2017. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0205219F. |
| 03/18/2016 | FA8620-16-C-3003 | \$16,989,914 | increment as part of a \$53,825,727 cost-plus-fixed-fee, firm-fixed-price, undefinitized contract action issued by the Air Force Life Cycle Management Center for the MQ-9 Hybrid Release 1 integration. Contractor will provide the integration and initial fielding of new capabilities into the MQ-9 Block 5 aircraft. The contract is scheduled to be completed by 3/17/2019. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0205219F. |
| 04/14/2016 | W58RGZ-13-C-0110 | \$9,486,872 | modification contract action issued by the Army Contracting Command for engineering services for the Grey Eagle unmanned aircraft system. The contract is scheduled to be completed by 4/2/2017. Program involvement: MQ-1C Grey Eagle, RQ-1. |
| 06/15/2016 | W58RGZ-14-C-0008 | \$24,848,504 | modification contract action issued by the Army Contracting Command for an additional six months of logistics support for the Warrior A and Gray Eagle Block 0 unmanned aircraft systems. The contract is scheduled to be completed by 12/15/2016. Program involvement: Warrior A, Gray Eagle, RQ-1. |
| 07/19/2016 | FA8620-15-G-4040 | \$15,058,865 | increment as part of a \$31,819,252 delivery order (0006) to a previously awarded undefinitized contract action issued by the Air Force Life Cycle Management Center for Block 25 and Block 30 ground control station production. The contract is scheduled to be completed by 5/31/2018. Program involvement: RQ-1. |
| 08/08/2016 | FA8620-15-G-4040 | \$8,833,175 | contract action issued by the Air Force Life Cycle Management Center for the Block 30 ground control station kit upgrades and Predator mission aircrew training system Delta kits effort. The contract is scheduled to be completed by 3/28/2018. Program involvement: RQ-1. |
| 08/15/2016 | FA8620-15-G-4040 | \$370,932,862 | firm fixed-price, incentive firm contract action issued by the Air Force Life Cycle Management Center for fiscal 2015 MQ-9 Reaper production. Contractor will provide 30 aircraft for fiscal 2015 MQ-9 Reaper production configuration aircraft. The contract is scheduled to be completed by 5/31/2019. Program involvement: MQ-9, RQ-1 Reaper. |
| 08/19/2016 | HQ0277-16-C-0001 | \$3,155,292 | increment as part of a \$9,609,911 competitive, cost-plus-fixed-fee contract action issued by the Missile Defense Agency to design, build, and test in the laboratory key laser subsystems required to demonstrate precision tracking. The contractor will perform systems level analyses and performance assessments based on design predictions and laboratory measurements. The contractor will develop and demonstrate, a MQ-9 flight representative laser system with the beam train optics required to upgrade a multi-spectral targeting system for use as an active tracking sensor. Under this contractual effort the contractor is to deliver a laser system sized to meet MQ-9 integration requirements. The contract is scheduled to be completed by 9/30/2017. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0603177C. |
| 08/30/2016 | FA8620-15-G-4040 | \$12,326,321 | order (0025) off of basic ordering agreement contract action issued by the Air Force Life Cycle Management Center for the MQ-9 Block 1 Extended Range/ Electrical Safety Improvement Program depot activation Logistics Support Analysis. Contractor will provide comprehensive integrated analyses in order to establish organic depot maintenance and repair capability for MQ-9 Extended Range, Block 1 unique parts, and Electrical Safety Improvement Program repairable components. The contract is scheduled to be completed by 8/31/2018. Program involvement: MQ-9, RQ-1. |
| 09/16/2016 | W58RGZ-13-C-0109 | \$252,873,120 | modification contract action issued by the Army Contracting Command for acquisition of four Gray Eagle War replacement aircraft and four satellite air data terminals under the Gray Eagle Unmanned Aircraft Systems full |

| | | | |
|------------|-------------------|---------------|--|
| | | | rate production contract. The contract is scheduled to be completed by 12/30/2017. Program involvement: MQ-1C Gray Eagle. |
| 10/21/2016 | W58RG7-17-C-0018 | \$74,000,000 | increment as part of a \$310,000,000 cost-plus-incentive-fee contract action issued by the Army Contracting Command for logistics support of the MQ-1C Gray Eagle unmanned aircraft system sustainment operations. The contract is scheduled to be completed by 10/23/2017. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 11/21/2016 | FA8620-15-G-4040 | \$39,777,423 | modification (0009) to a previously awarded contract action issued by the Air Force Life Cycle Management Center for MQ-9 Reaper Extended Range additional procurement effort. Contractor will provide fabrication, delivery, and installation of MQ-9 Extended Range retrofit kits. The contract is scheduled to be completed by 11/20/2018. Program involvement: MQ-9, RQ-1. |
| 12/09/2016 | FA8620-15-G-4040 | \$16,825,033 | increment as part of a \$17,143,626 contract (0039) on a previously awarded basic ordering agreement contract action issued by the Air Force Life Cycle Management Center for MQ-9 Block 5 Exportability acquisition. Contractor will develop an MQ-9 Block 5 configuration for future foreign military sales customers. The contract is scheduled to be completed by 1/31/2019. Program involvement: MQ-9, RQ-1. |
| 12/15/2016 | W58RGZ-17-C-0035 | \$13,300,000 | increment as part of an \$80,000,000 cost-plus-fixed-fee contract action issued by the Army Contracting Command for continuation of contractor logistics services for the unmanned aircraft system Grey Eagle block zero. Work will be performed in Poway, CA (52%). The contract is scheduled to be completed by 12/15/2017. Program involvement: MQ-1, RQ-1. |
| 12/22/2016 | FA8528-17-C-0001 | \$104,927,364 | increment as part of a \$349,141,302 cost-plus-fixed-fee contract action issued by the Air Force Life Cycle Management Center for MQ-1 Predator and MQ-9 Reaper unmanned aerial systems support and services. Contractor will provide program management, logistics support, configuration management, technical manual and software maintenance, contractor field service representative support, inventory control point management, flight operations support, depot repair, and depot field maintenance. The contract is scheduled to be completed by 12/31/2017. Program involvement: MQ-1, MQ-9. |
| 01/04/2017 | FA8620-15-G-4040 | \$56,656,833 | undefinitized action order (0034) to an existing basic ordering agreement contract action issued by the Air Force Life Cycle Management Center for the Spain MQ-9 Exportable Block 5 Procurement program. Contractor will provide MQ-9 aircraft and its associated equipment. The contract is scheduled to be completed by 1/31/2019. Program involvement: MQ-9, RQ-1. |
| 01/05/2017 | FA8620-15-G-4040 | \$23,969,228 | delivery order (0026) to a previously awarded contract action issued by the Air Force Life Cycle Management Center for MQ-9 contractor logistics support services phase 1. The contract is scheduled to be completed by 12/31/2017. Program involvement: MQ-9, RQ-1. |
| 01/25/2017 | FA8620-17-C-2005 | \$11,752,919 | undefinitized contract action issued by the Air Force Life Cycle Management Center for Italy MQ-9 Contractor Logistics Support Phase V Program. Contractor will provide depot repair, life cycle sustainment, and software maintenance services for Italy's MQ-9A fleet. The contract is scheduled to be completed by 7/30/2018. Program involvement: MQ-9, RQ-1. |
| 02/01/2017 | FA8620-17-C-2001 | \$11,894,645 | undefinitized contract action issued by the Air Force Life Cycle Management Center for spare parts and support equipment for United Kingdom's MQ-9 fleet. The contract is scheduled to be completed by 11/30/2018. Program involvement: MQ-9, RQ-1. |
| 03/20/2017 | FA8620-17-F-2351) | \$9,731,841 | increment as part of a \$12,250,789 cost-plus-fixed-fee contract action issued by the Air Force Lifecycle Management Center to fabricate 10 of each: MQ-9 Block 5 extended range installation kits, MQ-9 Block 5 Barrett Asymmetric Digital Datalink Computer installation kits, MQ-9 Block 5 Beyond Line of Sight installation kits, MQ-9 Block 5 VORTEX installation kits, verification/finalization of Installation Kit Interactive Electronic Technical Manual kit documentation, and installation of the aforementioned kits onto MQ-9 Block 5 aircraft. The contract is scheduled to be completed by 3/20/2019. Program involvement: MQ-9, RQ-1. |

| | | | |
|------------|-----------------------|---------------|--|
| 03/28/2017 | FA8620-15-G-4040 | \$39,122,913 | modification to a previously awarded contract action issued by the Air Force Life Cycle Management Center for MQ-9 contractor logistics support. Work will be performed in Poway, CA; and worldwide locations. Program involvement: MQ-9, RQ-1. |
| 03/30/2017 | FA8620-17-D-2000 | \$0 | increment as part of a \$98,000,000 ceiling indefinite-delivery/indefinite-quantity contract action issued by the Air Force Life Cycle Management Center for the MQ-9 technology maturation effort. This effort will provide a broad enterprise of activities associated with development of capabilities for the MQ-9 Reaper unmanned aircraft system (UAS). The objective is to develop approved capabilities for the MQ-9 UAS to satisfy criteria to be on-ramped onto a contract to integrate the capability into the MQ-9 fleet. Each capability will be assessed individually for logistics and engineering implications, risks, impacts, and operational suitability prior to integration on-ramping decisions. The contract is scheduled to be completed by 9/20/2021. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0205219F. |
| 05/10/2017 | W58RGZ-13-C-0109 | \$221,577,527 | modification contract action issued by the Army Contracting Command for hardware acquisition for the extended range Gray Eagle unmanned aircraft system, to include 20 extended range aircraft; 20 satellite communications (SATCOM) air data terminals; six universal ground control stations; one mobile ground control station; nine universal ground data terminals; three lots of spares; three lots of ground support equipment and associated program management. This acquisition also includes options for up to five extended range Gray Eagle aircraft; five SATCOM air data terminals; and associated program management. The contract is scheduled to be completed by 11/30/2019. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 05/16/2017 | FA8620-15-G-4040 0001 | | \$399,979,895 firm-fixed-price contract action issued by the Air Force Life Cycle Management Center for MQ-9 Reaper production. Contractor will produce 36 MQ-9 Reaper aircraft in the fiscal 2016 production configuration. The contract is scheduled to be completed by 8/31/2020. Program involvement: RQ-1, MQ-9 Reaper. |
| 06/28/2017 | FA8620-15-G-4040 | \$27,611,788 | cost-plus-fixed-fee contract action issued by the Air Force Life Cycle Management Center for the MQ-9 Gen 4 Predator primary datalink diminishing manufacturing sources. The contract is scheduled to be completed by 11/29/2019. Program involvement: RQ-1, MQ-9. |
| 09/01/2017 | W58RGZ-17-C-0018 | \$19,155,072 | modification contract action issued by the Army Contracting Command for the addition of 15,000 flight hours for the Gray Eagle unmanned aircraft systems performance-based logistics contract. The contract is scheduled to be completed by 10/22/2017. Program involvement: MQ-1C Gray Eagle, RQ-1 . |
| 09/20/2017 | W58RGZ-13-C-0110 | \$27,031,073 | modification contract action issued by the Army Contracting Command for service for the Gray Eagle program. The contract is scheduled to be completed by 3/17/2019. Program involvement: MQ-1C Gray Eagle, RQ-1 . RDT&E involvement: 0305219A. |
| 09/28/2017 | W58RGZ-13-C-0109 | \$163,212,869 | modification contract action issued by the Army Contracting Command for MQ-1C Gray Eagle extended range supplemental production hardware. The contract is scheduled to be completed by 7/31/2020. Program involvement: MQ-1C, RQ-1. |
| 10/04/2017 | FA8620-15-G-4040 | \$9,864,489 | increment as part of a \$10,153,077 cost-fixed-price-fee order from a basic ordering agreement contract action issued by the Air Force Life Cycle Management Center to stand up an organic depot support capability at Oklahoma City Air Logistics Complex for the MQ-9 fuel system reparable components. This includes line replaceable and shop replaceable units for all programs-of-record sub-system configurations. Work will be performed in Oklahoma City, OK. The contract is scheduled to be completed by 10/7/2019. Program involvement: MQ-9, RQ-1. |
| 10/23/2017 | W58RGZ-17-C-0018 | \$92,961,799 | increment as part of a \$462,055,855 modification contract action issued by the Army Contracting Command for 12 months of maintenance and repair support of fielded Gray Eagle unmanned aircraft system units. The contract is scheduled to be completed by 10/23/2018. Program involvement: MQ-1C Gray Eagle, RQ-1 . |
| 12/01/2017 | FA8620-16-C-3003 | \$3,354,632 | increment as part of a \$16,001,592 cost-plus-fixed-fee and firm-fixed-price undefinitized modification to a previously awarded contract action issued |

| | | | |
|------------|------------------|---------------|--|
| | | | by the Medium Altitude Unmanned Aerial Systems for the MQ-9 hybrid release 1 integration and 2407 operational flight program software testing, logistics engineering documentation, technical data, training, specifics and drawings. The contract is scheduled to be completed by 2/21/2021. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0205291N. |
| 12/08/2017 | FA8620-18-F-2375 | \$52,962,472 | increment as part of a not-to-exceed \$134,010,380 undefinitized contract action issued by the Air Force Life Cycle Management Center for the production of block 30 ground control stations. The contract is scheduled to be completed by 1/31/2020. Program involvement: RQ-1. |
| 12/15/2017 | W58RGZ-17-C-0035 | \$22,781,591 | increment as part of a \$94,575,690 modification contract action issued by the Army Contracting Command for contractor logistics services for the unmanned aircraft system Gray Eagle Block Zero. The contract is scheduled to be completed by 12/15/2018. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 12/22/2017 | FA8528-18-C-0001 | \$32,345,224 | \$328,801,883 cost-plus-fixed-fee contract action issued by the Air Force Life Cycle Management Center for MQ-1 Predator and MQ-9 Reaper remotely piloted aircraft support and services. This contract provides for core management, logistics support, configuration management, technical manual and software maintenance, contractor field service representative support, inventory control point management, flight operations support, depot repair, and depot field maintenance. The contract is scheduled to be completed by 12/31/2018. Program involvement: MQ-1, MQ-9." |
| 01/03/2018 | FA8620-16-C-3003 | \$1,186,800 | increment as part of a \$14,151,324 cost-plus-fixed-fee and firm-fixed-price undefinitized modification to a previously awarded contract action issued by the Wright-Patterson AFB for the MQ-9 Block 5 kits, to include extended-range kits, beyond-line-of-sight kits and Barrett Asymmetrical Digital Datalink Computer Routers. The contract is scheduled to be completed by 2/21/2021. Program involvement: RQ-1, MQ-9. |
| 01/12/2018 | FA8620-17-F2351 | \$10,461,551 | increment as part of an \$11,430,408 cost-plus-fixed-fee and firm-fixed-price modification to a previously awarded contract action issued by the Wright-Patterson AFB, Medium Altitude Unmanned Aerial Systems Div. for the MQ-09 Block 5 kits, to include extended-range kits, beyond-line-of-sight kits and Barrett Asymmetrical Digital Datalink Computer routers. The contract is scheduled to be completed by 3/31/2020. Program involvement: MQ-9, RQ-1. |
| 01/26/2018 | FA8620-18-F-2363 | \$9,864,489 | increment as part of a \$49,336,683 cost-plus-fixed-fee order to a previously awarded basic ordering agreement contract action issued by the Air Force Life Cycle Management Center for tasks necessary to develop, field, and sustain Air Force Special Operations Command and Air Combat Command MQ-9 software development. The contract is scheduled to be completed by 1/31/2020. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0205219. |
| 03/29/2018 | FA8620-18-F-2303 | \$295,654,506 | firm-fixed-price contract action issued by the Air Force Life Cycle Management Center for MQ-9 Reaper production. This contract provides for the production of the MQ-9 Reaper aircraft in the fiscal 2017 production configuration. The contract is scheduled to be completed by 7/29/2021. Program involvement: MQ-9, RQ-1. |
| 03/30/2018 | FA8620-18-C-2009 | \$33,523,382 | increment as part of a not-to-exceed \$80,869,382 cost-plus-fixed-fee undefinitized contract action issued by the Air Force Life Cycle Management Center for the United Kingdom MQ-9B Protector program. This contract provides for design, development, integration, and component level testing. The contract is scheduled to be completed by 8/31/2021. Program involvement: MQ-9, RQ-1. |
| 04/26/2018 | FA8620-15-G-4040 | \$36,653,495 | firm-fixed-price modification to a previously awarded contract action issued by the Air Force Life Cycle Management Center for MQ-9 Reaper production of spare engines and engine shipping containers. This contract provides for the production of MQ-9 spare engines and engine shipping containers in the fiscal 2016 production configuration. The contract is scheduled to be completed by 5/31/2020. Program involvement: MQ-9, RQ-1. |
| 05/16/2018 | FA8620-18-F-2364 | \$40,886,489 | increment as part of a \$206,009,932 firm-fixed-price, fixed-price-incentive, and cost-plus-fixed-fee contract action issued by the Air Force Life Cycle Management Center to retrofit 122 MQ-9 Block 5 aircraft. The contract is |

| | | | |
|------------|------------------|---------------|---|
| | | | scheduled to be completed by 6/20/2024. Program involvement: MQ-9, RQ-1. |
| 06/14/2018 | FA8620-15-G-4040 | \$22,907,561 | firm-fixed-price modification to a previously awarded contract action issued by the Air Force Life Cycle Management Center for MQ-9 Reaper radar productionization. This contract provides for the productionization of the Lynx Block 20A synthetic aperture radar (SAR) configuration, to be a form, fit and functional replacement for the current production configuration Lynx Block 20A SAR for installation in the MQ-9 Block 5 remotely piloted aircraft. The contract is scheduled to be completed by 6/30/2020. Program involvement: RQ-1, MQ-9. |
| 06/15/2018 | N00019-18-C-1063 | \$19,387,351 | increment as part of a not-to-exceed \$39,566,023 undefinitized contract action issued by the Naval Air Systems Command to provide additional unmanned air system intelligence, surveillance, and reconnaissance surge support for Marine Corps Task Force Southwest operations in the US Central Command (CENTCOM) area of operations (AOR) using contractor-owned/contractor-operated MQ-9 Reaper unmanned air system. Work will be performed in Yuma, AZ (35%); Poway, CA (15%); and CENTCOM AOR (50%). The contract is scheduled to be completed by 11/30/2018. Program involvement: RQ-1, MQ-9. |
| 08/22/2018 | W58RGZ-13-C-0110 | \$11,096,457 | modification contract action issued by the Army Contracting Command for sub-engineering service memorandums in support of the Gray Eagle aircraft system. The contract is scheduled to be completed by 9/30/2019. Program involvement: RQ-1, MQ-1, Gray Eagle. RDT&E involvement: 0305219A. |
| 08/23/2018 | FA8620-18-C-2002 | \$123,000,000 | firm-fixed-price, cost-plus-fixed-fee contract action issued by the Air Force Life Cycle Management Center for the France 3rd/4th Systems MQ-9 Block 5 procurement program. The contract is scheduled to be completed by 5/1/2020. Program involvement: MQ-9, RQ-1. |
| 09/04/2018 | H92403-18-D-0006 | \$482,441 | increment as part of a \$15,000,000 maximum, sole source Indefinite-delivery/indefinite quantity contract action issued by the US Special Operations Command for integration and testing support for Medium Altitude, Long Endurance Tactical (MALET) MQ-9 and MQ-1C Special Operations Forces peculiar (SOF-p) modifications; procurement of GA-ASI developed and produced aircraft modification kits; and analysis and studies to inform future decisions on potential MALET MQ-9 and MQ-1C SOF-p modifications. The contract is scheduled to be completed by 9/30/2023. Program involvement: RQ-1, MQ-9. |
| 09/13/2018 | W58RGZ-18-C-0037 | \$15,796,523 | firm-fixed-price contract action issued by the Army Contracting Command for the procurement of MQ-1C Gray Eagle extended range aircraft unique initial spares and ground support equipment. The contract is scheduled to be completed by 2/28/2020. Program involvement: MQ-1, RQ-1. |
| 09/14/2018 | FA8620-18-F-2361 | \$4,944,701 | increment as part of a \$92,203,130 cost-plus-fixed-fee contract action issued by the Air Force Life Cycle Management Center for fiscal 2018 MQ-9 Block 30 Ground Control Station (GCS) retrofits. This contract provides for MD-1A Block 15 GCS to MD-1A Block 30 GCS retrofits. The contract is scheduled to be completed by 5/29/2020. Program involvement: MQ-9, RQ-1. |
| 09/28/2018 | W58RGZ-19-D-0001 | \$441,634,278 | cost-plus-fixed-fee contract action issued by the Army Contracting Command for procurement of technical services for Army Gray Eagle Unmanned Aircraft Systems. The contract is scheduled to be completed by 9/30/2023. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 10/23/2018 | W58RGZ-17-C-0018 | \$41,825,728 | increment as part of a \$192,660,310 modification contract action issued by the Army Contracting Command for Gray Eagle performance-based logistics. The contract is scheduled to be completed by 4/23/2019. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 11/02/2018 | FA8620-19-F-2386 | \$4,200,000 | increment as part of a \$10,731,134 cost-plus-fixed-fee contract action issued by the Air Force Life Cycle Management Center for MQ-9 weather tolerance activities. The contract is scheduled to be completed by 12/31/2020. Program involvement: RQ-1, MQ-9. RDT&E involvement: 0205219F. |
| 11/05/2018 | FA8620-19-F-2374 | \$263,403,355 | firm-fixed-price contract action issued by the Air Force Life Cycle Management Center for MQ-9 Reaper production. This contract provides for the |

| | | | |
|------------|------------------|--------------|--|
| | | | production of the MQ-9 Reaper aircraft in the fiscal 2018 production configuration. The contract is scheduled to be completed by 11/30/2021. Program involvement: RQ-1, MQ-9. |
| 12/04/2018 | FA8620-15-G-4040 | \$26,718,824 | option to a previously awarded contract action issued by the Air Force Life Cycle Management Center for MQ-9 contractor logistics support phase three. The contractor will provide an additional period of contractor logistics support for the French Air Force. The contract is scheduled to be completed by 12/31/2019. Program involvement: RQ-1, MQ-9. |
| 12/13/2018 | W58RGZ-17-C-0035 | \$25,000,000 | increment as part of a \$40,000,000 modification contract action issued by the Army Contracting Command for services on the Gray Eagle unmanned aircraft system. The contract is scheduled to be completed by 6/15/2019. Program involvement: RQ-1, MQ-1, Gray Eagle. |
| 12/21/2018 | FA8528-19-C-0001 | \$51,481,522 | increment as part of a \$291,391,727 cost-plus-fixed-fee and firm-fixed-price contract action issued by the Air Force Life Cycle Management Center for MQ-9 Reaper unmanned aerial systems support and services. This contract provides for program management, logistics support, configuration management, technical manual and software maintenance, contractor field service representative support, inventory control point management, flight operations support, depot repair, and depot field maintenance. The contract is scheduled to be completed by 12/31/2019. Program involvement: MQ-9, RQ-1. |
| 03/21/2019 | FA8620-19-F-2310 | \$38,928,697 | increment as part of a not-to-exceed \$123,293,911 undefinitized contract action issued by the Air Force Life Cycle Center for MQ-9 Block 5 procurement. This contract provides for four MQ-9 unmanned air vehicles, four Mobile Ground Control Stations, spares, and support equipment. The contract is scheduled to be completed by 12/31/2020. Program involvement: MQ-9, RQ-1. |
| 03/22/2019 | FA8620-19-F-2388 | \$4,373,617 | increment as part of a not-to-exceed \$8,925,748 undefinitized contract action issued by the Air Force Life Cycle Management Center for the France MQ-9 Block 1 Weapons integration effort. This contract provides for the production and integration of weapons kits onto the French Air Force MQ-9 Block 1 aircraft. The contract is scheduled to be completed by 9/30/2020. Program involvement: MQ-9, RQ-1. |
| 03/26/2019 | FA8620-15-G-4040 | \$9,211,561 | cost-plus-fixed-fee contract action issued by the Air Force Life Cycle Management Center for the United Kingdom (UK) MQ-9 Reaper contractor logistics support effort. This contract provides for ongoing sustainment of the UK MQ-9 fleet. Work will be performed in multiple locations. The contract is scheduled to be completed by 6/30/2019. Program involvement: MQ-9, RQ-1. |
| 03/29/2019 | FA8620-15-G-4040 | \$34,306,321 | contract action issued by the Air Force Life Cycle Management Center for the Spain MQ-9 Block 5 procurement undefinitized contract action definitization effort. This contract provides for the procurement of two MQ-9 aircraft and associated equipment. The contract is scheduled to be completed by 3/31/2020. Program involvement: MQ-9, RQ-1. |
| 04/19/2019 | W58RGZ-19-C-0027 | \$99,020,937 | cost-plus-incentive-fee contract action issued by the Army Contracting Command for performance-based logistics support services for the MQ-1C Gray Eagle Unmanned Aircraft System. The contract is scheduled to be completed by 4/23/2024. Program involvement: MQ-1, RQ-1. |
| 05/30/2019 | N00019-18-C-1063 | \$36,467,263 | modification to a previously awarded firm-fixed-price contract action issued by the Naval Air Systems Command for nine months of Group 5 unmanned air system intelligence, surveillance, and reconnaissance services. These services are in support of outside the continental US (OCO-NUS) Task Force Southwest and Marine Corps operations utilizing contractor-owned/contractor-operated MQ-9 unmanned air systems. Work will be performed in Yuma, AZ (35%); Poway, CA (15%); and various locations (50%). The contract is scheduled to be completed by 2/29/2020. Program involvement: MQ-9, RQ-1. |
| 06/17/2019 | FA8620-19-C-2003 | \$90,961,866 | cost-plus-fixed-fee contract action issued by the Air Force Life Cycle Management Center - Wright-Patterson for the United Kingdom (UK) MQ-9A Contractor Logistics Support Phase IV Program. This contract provides for depot repair, life cycle sustainment, and software maintenance services for UK's MQ-9A fleet. The contract is scheduled to be completed by 9/30/2021. Program involvement: MQ-9, RQ-1. |

| | | | |
|------------|------------------|-------------|--|
| 06/27/2019 | W58RGZ-19-C-0027 | \$9,733,334 | increment as part of a \$21,954,252 modification contract action issued by the Army Contracting Command - Redstone Arsenal 0027 for procurement of performance-based logistics support services for the MQ-1C Gray Eagle Unmanned Aircraft System. The contract is scheduled to be completed by 6/30/2020. Program involvement: MQ-1, RQ-1. |
| 06/28/2019 | W58RGZ-17-C-0035 | \$7,639,948 | modification contract action issued by the Army Contracting Command - Redstone Arsenal for engineering change proposal to upgrade the Warrior Alpha Unmanned Aircraft System fleet to a Gray Eagle Block 0 UAS deployable configuration. The contract is scheduled to be completed by 10/28/2020. Program involvement: MQ-1C Gray Eagle, RQ-1. |

General Atomics, Aeronautical Systems - Aircraft Systems Group

| | | | |
|------------|------------------|---------------|--|
| 10/30/2008 | FA8620-05-G-3028 | \$163,082,588 | increment as part of a \$177,082,588 CPFT contract action issued by the ASC for services, logistics support, and spares management in support of the Predator/Reaper MQ-1 and MQ-9 Unmanned Aircraft System programs. The contract is scheduled to be completed by 10/31/2009. Program involvement: Predator/Reaper, RQ-1. |
| 11/26/2008 | FA8620-05-G-3028 | \$52,927,284 | increment as part of a NTE \$115,158,656 FFP contract action issued by the ASC for 16 Global War on Terror, MQ-9 Reaper, Unmanned Aerial Vehicles. The contract is scheduled to be completed by 11/30/2009. Program involvement: MQ-9 Reaper, RQ-1. |
| 12/30/2008 | FA8620-05-G-3028 | \$42,638,374 | contract action issued by the ASC For management, urgent repairs and services, and logistics support for the Predator/Reaper MQ-1 and MQ-9 Unmanned Aircraft System program. The contract is scheduled to be completed by 12/31/2009. Program involvement: Predator, Reaper, RQ-1. |
| 01/29/2009 | W58RGZ-08-C-0082 | \$21,710,228 | CPFF four month extension to current contractor logistics support contract action issued by the ACC for logistics support for I-GNAT Warrior Alpha, and Sky Warrior Block O Unmanned Aircraft Systems at multiple OCONUS locations. The contract is scheduled to be completed by 5/31/2009. Program involvement: I-GNAT, RQ-1. |
| 02/05/2009 | FA8620-05-G-3028 | \$40,049,760 | increment as part of a NTE \$81,273,117 FFP contract action issued by the ASC for two MQ-9 Reaper Unmanned Aerial Vehicles and two Mobile Ground Control Stations for the Italy Foreign Military Sales customer. The contract is scheduled to be completed by 2/28/2010. Program involvement: MQ-9 Reaper, RQ-1. |
| 02/26/2009 | FA8620-05-G-3028 | \$168,372,886 | FFP contract action issued by the ASC for flight operations support, data collection/entry and numbered periodic depot maintenance for the Predator/Reaper Unmanned Aircraft System program. The contract is scheduled to be completed by 2/28/2010. Program involvement: Predator/Reaper, RQ-1. |
| 03/12/2009 | W58RGZ-05-C-0069 | \$33,000,000 | CPIF contract action issued by the AMCOM for incremental funding in support of the extended range multi-purpose unmanned aircraft systems system development and demonstration contract. Work will be performed in San Diego, CA (46%); Adelanto, CA (14%); Salt Lake City, UT (18%); and 2 other locations (22%). The contract is scheduled to be completed by 1/15/2010. Program involvement: ERMP-UAV, RQ-1. RDT&E involvement: 0305204A. |
| 05/01/2009 | W58RGZ-09-C-0151 | \$23,520,000 | CPIF contract action issued by the AMCOM for the acquisition of Production Ready Test Assets (PRTA) Extended Range Multi-Purpose (ERMP) Unmanned Aircraft Systems (UAS). Work will be performed in Poway, CA (46%); Adelanto, CA (14%); Salt Lake City, UT (18%); and 2 other locations (22%). The contract is scheduled to be completed by 5/21/2011. Program involvement: ERMP UAS, RQ-1. |
| 05/18/2009 | FA8620-05-G-3028 | \$9,828,520 | FFP contract action issued by the ASC for the Predator receiver terminals, installation and software updates. The contract is scheduled to be completed by 5/31/2010. Program involvement: RQ-1 Predator. |
| 05/20/2009 | W58RGZ-09-C-0153 | \$10,614,469 | CPFF contract action issued by the AMCOM for contractor logistics support for the ER multi-purpose quick reaction capability UAS in support of Operation Iraqi Freedom and Operation Enduring Freedom. Work will be performed in Adelanto, CA (19%); Hunt Valley, MA (19%); Salt Lake City, UT (14%); and Palmdale, CA (8%). The contract is scheduled to be completed by 5/19/2010. Program involvement: ER/MP UAV, RQ-1. |

| | | | |
|------------|------------------|--------------|---|
| 06/12/2009 | W58RGZ-09-C-0152 | \$53,969,958 | CPFF contract action issued by the AMCOM for contractor logistics support for the IGNAT/Warrior Alpha/Block 0 unmanned aircraft systems at multiple OCONUS locations. The contract is scheduled to be completed by 2/11/2010. Program involvement: IGNAT/Warrior, RQ-1. |
| 06/30/2009 | W58RGZ-05-C-0069 | \$24,405,260 | CPIF contract action issued by the AMCOM for the acquisition of additional extended range multi-purpose unmanned aircraft systems hardware to support Army system integration laboratory and training. Work will be performed in San Diego, CA (46%); Adelanto, CA (14%); Salt Lake City, UT (18%); and 2 other locations (22%). The contract is scheduled to be completed by 3/31/2011. Program involvement: ERMP, RQ-1. |
| 08/26/2009 | FA8620-05-G-3028 | \$5,022,500 | increment as part of a \$10,250,000 modified contract action issued by the ASC for one-year of Contractor Logistics Support for the Italian purchase of MQ-9 Reaper aircraft under the Foreign Military Sales program. The contract is scheduled to be completed by 8/31/2010. Program involvement: MQ-9, RQ-1. |
| 09/30/2009 | FA8620-05-D-3028 | \$46,040,935 | contract action issued by the ASC for Linux operating systems, technical orders, improved display, and spares for the Predator/Reaper. The contract is scheduled to be completed by 9/30/2010. Program involvement: RQ-1 Predator/Reaper. |
| 12/31/2009 | FA8620-05-G-3028 | \$53,211,124 | increment as part of a \$266,055,622 contract action issued by the ASC for reliability/maintenance enhancements; and CAMS/REMIS/CEMS data collection entry for the Predator/Reaper MQ-1 and MQ-9 unmanned aircraft system program. The contract is scheduled to be completed by 12/31/2010. Program involvement: MQ-1, MQ-9. |

General Atomics, Electromagnetic Systems

| | | | |
|------------|------------------|-------------|---|
| 09/12/2017 | HQ0277-17-C-0001 | \$7,000,000 | increment as part of a \$30,349,667 cost-plus fixed fee contract action issued by the Missile Defense Agency for a 12 month period of performance, to continue to demonstrate passive Missile Defense Agency's configured Reapers (MQ-9 unmanned aerial vehicle) in two Ballistic Missile Defense System (BMDS) tests and five continental US tests. Work will be performed in Albuquerque, NM; Huntsville, AL; and Tucson, AZ. The contract is scheduled to be completed by 9/30/2018. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0603890C. |
| 02/06/2019 | HQ0277-17-C-0001 | \$1,445,000 | increment as part of a \$30,900,000 cost-plus-fixed-fee modification to a previously awarded contract action issued by the Missile Defense Agency to demonstrate passive Missile Defense Agency configured MQ-9 unmanned aerial vehicles in Ballistic Missile Defense System tests. The contract is scheduled to be completed by 2/29/2020. Program involvement: MQ-9, RQ-1. RDT&E involvement: 0604876C. |

Honeywell International

| | | | |
|------------|------------------|-------------|--|
| 09/19/2012 | N00174-12-D-0006 | \$8,286,161 | contract action issued by the NSWC for post-production support services for the RQ-16B T-Hawk Block II Micro Air Vehicle. The contract is scheduled to be completed by 9/30/2013. Program involvement: RQ-16 T-Hawk. |
|------------|------------------|-------------|--|

L3 Technologies, Communications Systems-West

| | | | |
|------------|--|-------------|--|
| 12/16/2008 | | \$8,949,174 | FFP contract action issued by the to build Predator Primary Data Link Test Stands. The contract is scheduled to be completed by 12/31/2009. Program involvement: Predator, RQ-1. |
|------------|--|-------------|--|

L3 Technologies, Link Simulation & Training

| | | | |
|------------|------------------|-------------|---|
| 02/23/2017 | FA8621-13-C-6323 | \$5,516,989 | increment as part of a \$10,864,857 modification (P00101) to a previously awarded contract action issued by the Air Force Life Cycle Management Center for Predator Mission Aircrew Training System. Contractor will provide 20 Block-30 configuration devices, 20 dual Arc-210 radio hardware kits, and 20 sets of seats being produced under the basic contract. Work will be performed in Elma, NY. The contract is scheduled to be completed by 2/22/2022. Program involvement: RQ-1. |
|------------|------------------|-------------|---|

MAG Aerospace

| | | | |
|------------|------------------|--------------|---|
| 03/21/2019 | FA8620-19-C-2002 | \$11,386,672 | predominantly firm-fixed-price contract action issued by the Air Force Life Cycle Center for the UK MQ-9 Reaper Operations Center. This contract provides for ongoing sustainment, management, development and net- |
|------------|------------------|--------------|---|

work administration of the United Kingdom MQ-9 Reaper Operations Centers. Work will be performed in Creech AFB, NV; and Royal Air Force Waddington. The contract is scheduled to be completed by 9/30/2021. Program involvement: MQ-9, RQ-1.

Northrop Grumman, Aerospace Systems - Autonomous Systems

| | | | |
|------------|------------------|-------------|--|
| 10/09/2009 | FA8620-08-C-3004 | \$7,601,503 | increment as part of a \$9,632,882 contract action issued by the ASC for the performance of the system preliminary design for a scaled communications intelligence Airborne signals intelligence payload system for the MQ-9. The contract is scheduled to be completed by 10/31/2010. Program involvement: RQ-1, MQ-9. RDT&E involvement: 0305219F. |
|------------|------------------|-------------|--|

Northrop Grumman, Mission Systems

| | | | |
|------------|------------------|-------------|---|
| 09/28/2017 | N00164-17-G-JQ08 | \$8,739,678 | two year, firm-fixed-price supply, definitive job order under a basic ordering agreement contract action issued by the Naval Surface Warfare Center for the procurement of single color diode pumped laser transmitters. These single color diode pumped lasers are to be utilized in support of the Multi-spectral Targeting System deployed on Army Gray Eagle aircraft to facilitate and enable the delivery of laser guided munitions. The laser transmitter is a key component of the Multi-spectral Targeting System. The contract is scheduled to be completed by 9/30/2019. Program involvement: MQ-1C Gray Eagle, RQ-1 . |
|------------|------------------|-------------|---|

Northrop Grumman, Mission Systems, Electromagnetic Systems Laboratory

| | | | |
|------------|------------------|--------------|---|
| 06/22/2009 | FA8620-08-C-3004 | \$69,851,657 | increment as part of a \$71,047,776 CPIF contract action issued by the ASC to provide MQ-1 unmanned aerial system communications intelligence airborne signals intelligence Payload-1 C scaled sensors for the Predator UAS. The contract is scheduled to be completed by 6/30/2010. Program involvement: MQ-1. |
| 07/10/2009 | FA8620-08-C-3004 | \$69,851,657 | increment as part of a \$71,147,842 CPIF contract action issued by the ASC to provide MQ-1 UAS communication intelligence airborne signals intelligence payload -1 C scaled sensors for the Predator UAS. The contract is scheduled to be completed by 7/31/2010. Program involvement: RQ-1 Predator. |
| 08/31/2012 | FA8620-08-G-3007 | \$68,557,478 | CPIF contract action issued by the AFLCMC to develop, integrate, lab test and flight test the ASIP 2C processor/receiver. The contract is scheduled to be completed by 5/31/2014. Program involvement: ASIP, MQ-9, RQ-1. RDT&E involvement: 0205219F. |

Northrop Grumman, Space & Mission Systems

| | | | |
|------------|------------------|-------------|---|
| 06/08/2011 | FA8620-08-C-3004 | \$8,797,290 | CPFF contract action issued by the ASC to continue problem technical support fixed, and continue any additional tie line testing identified using two ASIP 1C sensors. The contract is scheduled to be completed by 6/30/2012. Program involvement: RQ-1, MQ-9. |
|------------|------------------|-------------|---|

Raytheon, Integrated Defense Systems

| | | | |
|------------|------------------|--------------|---|
| 11/14/2008 | FA8620-06-G-4041 | \$1,315,084 | increment as part of an \$8,068,000 FFP contract action issued by the ASC to provide 4 Multi-Spectral Targeting Systems Model B (MTS-B), whole spares and containers to support GWOT requirements for the Predator/Reaper Program. The contract is scheduled to be completed by 11/30/2009. Program involvement: Predator/Reaper Program, RQ-1. |
| 05/29/2009 | FA8620-06-G-4041 | \$14,094,649 | increment as part of an \$87,327,441 FFP contract action issued by the ASC to provided 35 Multi-Spectral Targeting Systems Model A, 25 Preproduction Units and associated replaceable unit spares. The contract is scheduled to be completed by 5/31/2010. Program involvement: Predator/Reaper, RQ-1, MTS. RDT&E involvement: 0305219F. |
| 06/10/2009 | FA8620-06-G-4041 | \$14,094,649 | increment as part of an \$87,327,441 FFP contract action issued by the ASC to provide 35 multi-spectral targeting systems Model A, 25 multi-spectral targeting systems, 25 multi-spectral targeting systems -B pre-production units. The contract is scheduled to be completed by 6/30/2010. Program involvement: Predator/Reaper, RQ-1, MTS. |
| 06/26/2009 | FA8620-06-G-4041 | \$14,094,651 | increment as part of an \$87,327,441 FFP contract action issued by the ASC for 35 Multi-Spectral Targeting Systems Model A, 25 MTS-B Pre-Production Units including one retrofit gyro and one retrofit imager. The |

| | | | |
|------------|-------------------|---------------------|--|
| | | | contract is scheduled to be completed by 6/30/2010. Program involvement: Predator, Reaper, RQ-1, MTS. |
| 12/31/2009 | FA8620-06-G-4041 | \$12,565,938 | increment as part of a \$38,078,612 contract action issued by the ASC for CY10 contractor logistics support of the multi-spectral targeting system for the MQ-1 Predator and MQ-9 Reaper remotely piloted aircraft systems. The contract is scheduled to be completed by 12/31/2010. Program involvement: MQ-1, MQ-9, MTS. |
| 04/29/2011 | FA8620-06-G-4041 | \$22,654,214 | FFP contract action issued by the ASC for logistical support of the Multi-spectral Targeting Systems for the Predator/Reaper program. The contract is scheduled to be completed by 4/30/2012. Program involvement: RQ-1 Predator/Reaper. RDT&E involvement: 0205219F. |
| 09/17/2012 | FA8620-06-G-4041 | \$44,032,247 | modification contract action issued by the AFLCMC for the Reaper/Predator Program. The contract is scheduled to be completed by 7/17/2015. Program involvement: RQ-1 Reaper/Predator. RDT&E involvement: 0305219F. |
| 12/19/2012 | FA8620-06-G-4041 | \$14,011,652 | modification contract action issued by the AFLCMC for four multi-spectral targeting system, target location accuracy, high-definition video and targeting systems for the Reaper/Predator program. The contract is scheduled to be completed by 7/17/2015. Program involvement: Reaper/Predator, RQ-1, MQ-9. |
| 12/20/2012 | FA8528-13-C-0031 | \$150,291,636 | FFP, CPFF and cost-reimbursable-no-fee contract action issued by the AFLCMC to procure MQ-1 (Predator) and MQ-9 (Reaper) sensor support and services. The contract is scheduled to be completed by 12/31/2013. Program involvement: MQ-1, MQ-9. |
| 09/25/2013 | FA8620-11-G-4050 | \$13,185,564 | modification under an existing contract action issued by the AFLCMC for additional quantities of Multi-Spectral Targeting Systems (MTS)-B High-Definition Infrared (HD-IR) turrets for the MQ-9 Reaper. The contract is scheduled to be completed by 5/30/2015. Program involvement: RQ-1, MQ-9 Reaper, MTS-B. |
| 12/18/2014 | FA8620-11-G-4050 | \$46,646,592 | FFP modification to a previously awarded contract action issued by the AFLCMC for MQ-1 and MQ-9 support. The contract is scheduled to be completed by 6/30/2016. Program involvement: RQ-1, MQ-9. |
| 12/18/2015 | FA8528-16-C-0002 | \$3,853,542 | increment as part of a \$49,475,571 firm-fixed-price contract action issued by the AFLCMC for Predator (MQ-1) and Reaper (MQ-9) sensors contractor logistics support. Contractor will provide program management, contractor field service representative support, depot maintenance, sustaining engineering support, supply and logistics support, configuration management, tech data maintenance, software maintenance, reliability and maintainability, and inventory control point and warehouse support for the MQ-1 and MQ-9 sensors. Work will be performed in TX; and Jacksonville, FL. The contract is scheduled to be completed by 12/31/2016. Program involvement: MQ-1, MQ-9, RQ-1. |
| 03/24/2017 | "FA8620-17-C-2009 | | |
| " | \$12,625,282 | cost-plus-fixed-fee | contract action issued by the Air Force Lifecycle Management Center for MQ-1 and MQ-9 support. Contractor will establish a dedicated software team to develop, field, and sustain the Medium Altitude Long Endurance Tactical Multi-Spectral Targeting systems software line. The contract is scheduled to be completed by 3/24/2020. Program involvement: MQ-1, MQ-9. RDT&E involvement: 0305219F. |
| 09/29/2017 | W56KGY-17-C-0020 | \$14,590,381 | increment as part of a \$29,776,287 firm-fixed-price contract action issued by the Army Contracting Command for the purchase of 21 Common Sensor Payload systems to meet an increased production requirement of the Army Gray Eagle. The contract is scheduled to be completed by 3/31/2019. Program involvement: MQ-1C Gray Eagle, RQ-1. |
| 05/04/2018 | N00164-18-C-JQ40 | \$28,540,000 | firm-fixed-price, definitive contract action issued by the Naval Surface Warfare Center for the procurement of 20 common sensor payloads (CSP), consisting of one turret and one electronics unit in each system as well as data. The CSP is an electro-optical/infrared sensor (EO/IR) system for the Army's MQ-1C Gray Eagle unmanned aircraft system. The primary mission of the EO/IR sensor system is to provide enhanced visual imagery to augment existing electronic sensors that will enhance low-visibility and night navigation, interception, observation and surveillance; insertion and |

| | | | |
|------------|------------------|--------------|--|
| | | | extraction operations; combat search and rescue; identification; real-time situational awareness and threat warning; reconnaissance and surveillance as well as visit, board, search and seizure operations. The contract is scheduled to be completed by 10/31/2019. Program involvement: MQ-1, RQ-1. |
| 05/31/2018 | N00164-18-C-JQ40 | \$11,016,000 | firm-fixed-price modification to a previously awarded contract action issued by the Naval Surface Warfare Center for the procurement of eight common sensor payloads (CSP) (one turret and one electronics unit in each system) and data. The CSP is an electro-optical/infrared (EO/IR) sensor system for the Army Gray Eagle unmanned aircraft system. The primary mission of the EO/IR sensor system is to provide enhanced visual imagery to augment existing electronic sensors that will enhance low visibility and night navigation; interception, observation and surveillance; insertion and extraction operations; combat search and rescue; identification, real-time situational awareness and threat warning; reconnaissance and surveillance; as well as visit, board, search and seizure operations. The contract is scheduled to be completed by 3/31/2020. Program involvement: MQ-1, EQ-1. |
| 12/21/2018 | FA8528-19-C-0002 | \$37,779,873 | increment as part of a \$59,211,905 cost-plus fixed-fee and firm-fixed-price contract action issued by the Air Force Life Cycle Management Center for Reaper MQ-9 sensors contractor logistics support. This contract provides for program management, contractor-filed service-representative support, depot repair, depot maintenance, sustaining engineering support, supply and logistics support, configuration management, tech data maintenance, software maintenance, inventory control point, and warehouse support for the MQ-9 sensors. Work will be performed in McKinney, TX; and Jacksonville, FL. The contract is scheduled to be completed by 12/31/2019. Program involvement: MQ-9, RQ-1. |

Rockhill Group

| | | | |
|------------|------------------|---------|---|
| 08/01/2016 | FA4890-16-C-0011 | \$9,534 | increment as part of a \$7,610,538 fixed-price with cost-reimbursable line items contract action issued by the Air Combat Command for air and ground training support. Contractor will furnish all personnel, equipment, tools, materials, supervision, and all other items and services that are required to support MQ-1/9 RPA with air and ground intelligence, surveillance and reconnaissance. Work will be performed in Holloman AFB, NM; Creech AFB, NV; March ANG Base , CA; and Hancock ANGB, NY. The contract is scheduled to be completed by 9/30/2017. Program involvement: MQ-1, RQ-1, MQ-9. |
|------------|------------------|---------|---|

Unmanned Systems

| | | | |
|------------|------------------|-------------|---|
| 06/30/2010 | FA8620-10-C-3016 | \$3,808,502 | increment as part of a \$7,613,065 contract action issued by the ASC to provide pilot and sensor operator services for acceptance and flight test of the Predator/Reaper program. The contract is scheduled to be completed by 6/30/2011. Program involvement: RQ-1 Predator/Reaper. RDT&E involvement: 0305219F. |
|------------|------------------|-------------|---|

URS Group, Federal Services

| | | | |
|------------|------------------|--------------|---|
| 07/01/2013 | FA4890-10-C-0007 | \$14,219,315 | FPPAF contract action issued by the ACC to continue to provide program support for Air Combat Command's Unmanned Aircraft System Operations Center support. Work will be performed in Creech AFB, NV; Ellsworth AFB, SD; Holloman AFB, NM; and Whiteman AFB, MO. The contract is scheduled to be completed by 6/30/2014. Program involvement: RQ-1, MQ-9. |
| 04/23/2014 | FA4890-10-C-0007 | \$15,815,983 | modification to a FPAF contract action issued by the ACC to continue to provide program support for Air Combat Command's Unmanned Aircraft System Operations Center Support. Work will be performed in Creech AFB, NV; Ellsworth AFB, SD; Holloman AFB, NM; and Whiteman AFB, MO. The contract is scheduled to be completed by 6/30/2015. Program involvement: RQ-1, MQ-9. |
| 03/06/2015 | FA4890-10-C-0007 | \$7,550,719 | modification to a previously awarded contract action issued by the ACC to provide unmanned aircraft system operations center support that includes the MQ-1 Predator and MQ-9 Reaper. Work will be performed in Creech AFB, NV; Ellsworth AFB, SD; Holloman AFB, NM; and Whiteman AFB, MO. The contract is scheduled to be completed by 3/31/2016. Program involvement: MQ-1, MQ-9. |

| | | | |
|------------|------------------|-------------|--|
| 01/27/2016 | FA4890-16-C-0007 | \$9,692,686 | firm-fixed-price contract action issued by the Air Combat Command for Air Combat Command unmanned aircraft systems operation centers support for the MQ-1 Predator and MQ-9 Reaper. Work will be performed in NV; Ellsworth AFB, SD; Holloman AFB, NM; and 4 other locations. The contract is scheduled to be completed by 3/31/2017. Program involvement: MQ-1, MQ-9. |
| 03/09/2018 | FA4890-18-D-0002 | \$1,755,966 | increment as part of a \$961,000,000 estimated ceiling indefinite-delivery/indefinite-quantity contract action issued by the Air Combat Command for the remotely piloted aircraft operations and maintenance support. This contract provides a high level of MQ-1, MQ-9, and RQ-4 organizational-level maintenance and qualified launch and recovery element pilot and sensor operator aircrew support for MQ-1 Predator and MQ-9 Reaper remotely piloted aircraft weapons systems to sustain the combat and training capability at tasked locations worldwide. The contract is scheduled to be completed by 6/30/2019. Program involvement: MQ-1, MQ-9, RQ-4. |

Funding History

| RDT&E (\$ Millions) | FY11 | FY12 | FY13 | FY14 | FY15 | FY16 | FY17 | FY18 | FY19 | FY20* |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| BA7: Operational Systems Development (OSD) | | | | | | | | | | |
| PE# 0305204A Tactical UAVs | | | | | | | | | | |
| ERMP | 36.2 | 26.5 | 28.4 | 33.5 | 22.9 | 13.2 | — | — | — | — |
| PE# 0305219A MC-1 Gray Eagle | | | | | | | | | | |
| Proj. MQ1: MQ-1 Gray Eagle - Army UAV | 119.2 | 121.8 | 68.7 | 10.9 | 46.5 | — | — | — | — | — |
| PE# 0203744A Aircraft Mods | | | | | | | | | | |
| Project EB6 MQ-1C mods | — | — | — | — | — | — | — | 34.2 | 17.7 | 16.5 |
| PE# 0205219F MQ-9 Development & Fielding | | | | | | | | | | |
| MQ-9 Upgrades | 136.7 | 107.6 | 130.9 | 104.0 | 141.5 | 124.7 | 167.2 | 184.3 | 108.8 | 155.0 |
| PE# 0305219F Predator Development | | | | | | | | | | |
| Proj. 675143: Predator | 42.8 | 51.6 | 9.1 | 0.8 | — | 0.7 | — | — | — | — |
| PE# 11052199BB MQ-9 UAV | | | | | | | | | | |
| Proj. S851 SOCOM MQ-9 | 0.1 | 2.5 | 3.0 | 13.3 | 14.9 | 18.1 | 17.1 | 33.1 | 18.4 | 20.7 |
| Procurement (\$ Millions) | FY11 | FY12 | FY13 | FY14 | FY15 | FY16 | FY17 | FY18 | FY19 | FY20* |
| Army Aircraft Procurement: BA 01 Aircraft | | | | | | | | | | |
| MQ-1C Gray Eagle (quantity) | 455.9 (39) | 550.8 (29) | 376.9 (15) | 500.5 (23) | 238.1 (19) | 314.3 (20) | 403.6 (24) | 224.5 (20) | 163.3 (10) | 54.0 (6) |
| Army Aircraft Procurement: BA 02 Modification of Aircraft | | | | | | | | | | |
| Grey Eagle Mods | 98.3 | 147.0 | 173.9 | 97.8 | 25.3 | 148.3 | 91.7 | 74.3 | 129.8 | 14.7 |
| Navy Aircraft Procurement: BA 04 Other Aircraft | | | | | | | | | | |
| MQ-9 Reaper (quantity) | — | — | — | — | — | — | — | — | — | 77.0 (3) |
| Air Force Aircraft Procurement: BA 04 Other Aircraft | | | | | | | | | | |
| Other Aircraft | | | | | | | | | | |
| MQ-9 Reaper (quantity) | 693.2 (48) | 659.6 (48) | 681.5 (36) | 349.2 (20) | 418.2 (24) | 656.4 (33) | 488.6 (24) | 389.2 (16) | 401.6 (24) | 361.4 (12) |
| Air Force Aircraft Procurement: BA 05 Modification of In-Service Aircraft | | | | | | | | | | |
| Other Aircraft | | | | | | | | | | |
| MQ-1 Mods | 20.1 | 161.2 | 27.8 | 7.9 | 4.8 | 3.1 | — | — | — | — |
| MQ-9 Mods | 160.4 | 110.7 | 177.5 | 58.9 | 155.4 | 184.0 | 203.7 | 253.9 | 171.5 | 383.6 |
| MQ-9 UAS Payloads | — | 74.6 | 84.5 | — | — | — | 22.9 | 5.0 | 16.0 | 19.8 |
| Defense-Wide, SOCOM Procurement: BA 02 Aviation Programs | | | | | | | | | | |
| MQ-1 Predator | 22.8 | 3.0 | 3.9 | — | — | — | — | — | — | — |
| MQ-9 Reaper | 6.3 | 3.0 | 3.9 | 12.9 | 18.6 | 11.7 | 10.7 | 41.4 | 24.6 | 7.2 |

*budget request

Costs

In the FY19 budget submission, the MQ-9 as 430 aircraft at a cost of acquisition objective as 233 aircraft the Air Force listed the objective for \$8,659.3 million; the Army listed its at a cost of \$3,775.5 million.

Procurement unit costs (then-year \$) from P-1 documents:

US Air Force

| | |
|-------|---|
| FY99: | \$7,632,800 (RQ-1) |
| FY02: | \$2,909,000 (MQ-1B) \$11,367,000 (MQ-9) |
| FY03: | \$3,727,000 (MQ-1B) \$8,667,000 (MQ-9) |
| FY04: | \$4,459,000 (MQ-1B) \$11,302,000 (MQ-9) |
| FY05: | \$4,924,000 (MQ-1B) \$12,440,000 (MQ-9) |
| FY06: | \$3,664,000 (MQ-1B) \$14,095,000 (MQ-9) |
| FY07: | \$4,263,000 (MQ-1B) \$13,400,000 (MQ-9) |
| FY08: | \$5,561,000 (MQ-1B) \$12,499,000 (MQ-9) |
| FY09: | \$3,810,000 (MQ-1B) \$8,510,000 (MQ-9) |
| FY10: | n/a \$9,226,000 (MQ-9) |
| FY11: | n/a \$12,365,000 (MQ-9) |
| FY12: | n/a \$13,121,000 (MQ-9) |
| FY13: | n/a \$12,134,000 (MQ-9) |
| FY14: | n/a \$12,718,000 (MQ-9) |
| FY15: | n/a \$16,000,000 (MQ-9) |
| FY16: | n/a \$17,017,000 (MQ-9) |
| FY17: | n/a \$17,800,000 (MQ-9) |
| FY18: | n/a \$11,213,000 (MQ-9) |
| FY19: | n/a \$18,150,000 (MQ-9) |
| FY20: | n/a \$24,856,000 (MQ-9) |

US Army (MQ-1C)

| | |
|-------|--------------|
| FY10: | \$5,180,300 |
| FY11: | \$13,080,000 |
| FY12: | \$16,000,000 |
| FY13: | \$25,123,800 |
| FY14: | \$29,142,867 |
| FY15: | \$12,530,579 |
| FY16: | \$16,292,529 |
| FY17: | \$14,260,615 |
| FY18: | \$10,682,364 |
| FY19: | \$10,332,600 |
| FY20: | \$9,000,000 |

Program Overview

History

UAV Joint Program Office Established

Following cancellation of the troubled Army MQM-105 *Aquila* RPV program, Congress finally lost patience with the ineffective way the armed services were pursuing sepa-

rate and often overlapping RPV efforts. It froze all FY88 RDT&E funding (\$52.6 million) for non-lethal unmanned aerial vehicles (UAVs) and directed DoD to develop a coherent joint-service plan. In June 1988, the Pentagon submitted a seven-year,

\$2.3 billion master plan covering development and procurement of four different UAVs (Close-Range, Short-Range, Medium-Range, and Endurance) for a variety of missions.

UAV-E Requirement

The UAV-E system was based on earlier DARPA-sponsored and in-house efforts including high-altitude long-endurance (HALE) UAVs such as Boeing's *Condor*, Leading Systems' *Amber IV*, General Atomics *Amber*, and E-System's *EVER* (Endurance Vehicle for Extended Reconnaissance). The requirement for UAV-E was for an air vehicle with a range of more than 1,000 miles, and an endurance of about 48 hours. Potential missions for the system would be targeting and surveillance of large areas of a battlefield or ocean, communications relay, or long-term monitoring of ground-based sensors. The 1990 update of the UAV master plan called for low-rate initial production of the UAV-E in mid FY97. Under this plan, initial operational capability would not occur until near the turn of the century.

CIA Reorganization

In the early 1990s, the Joint Chiefs of Staff requested the rapid development of a long-range tactical UAV to conduct surveillance operations over Bosnia. The program was handed over to the CIA under the expectation that it could circumvent to DoD acquisition bureaucracy and rapidly field a system. The UAV selected was the General Atomics *Gnat-750*, a derivative of a UAV developed by Leading Systems Inc. under the \$40 million DARPA *Amber* program. About eight of the *Amber* UAVs are still in storage at the Navy China Lake facility; these UAVs were significantly smaller than the *Gnat-750*. General Atomics acquired the program after Leading Systems went bankrupt. The *Gnat-750* first flew in 1989 and in 1992 completed a 40-hour mission from the firm's test facility at El Mirage, CA. Two *Gnat-750*s were acquired for the Tier 1 effort. This part of the program aimed at fielding a system with commercial sensor technology, which if lost over former Yugoslavia, would not compromise sensitive US technology.

Technical Problems

The program was troubled by the bureaucratic entanglements of running a DoD/CIA program, and CIA inexperience with UAV flight control, sensor and flight control integration, and data link technology. In October 1993, one of the two prototypes crashed due to a computer problem which shut down the engine and data link at speeds under 40 mph. When a wind gust induced an indication of low airspeed, the aircraft lost control and crashed.

Initial Bosnian Deployment

An expedient system was fielded by the CIA in Albania in January 1994 consisting of two *Gnat-750* air vehicles and a ground control system with satellite uplink. The aim was to base the systems out of Italy, but the Italian government denied CIA requests to station the UAV-E Tier 1 team in Italy. The original plan had called for deployment in October 1993 but was put off due to software problems and other technical issues. The Albanian deployment was a failure and 10 initial flights were conducted. The problems were due to bad weather over the surveillance areas, maintenance problems, and continued difficulties with the data link. The CIA began using a Schweitzer *RG-8* powered glider as the data relay. By the summer of 1994, the operation had conducted 30 flights of which 12 were viewed as successful. In the summer of 1994, the operation was apparently shifted to Croatia that eased the operational problems caused by the long flight times into Bosnia.

Tier 2

The resurrected USAF UAV-E program, labeled Tier 2, was expected to last about 2 years and cost \$92 million. The initial program objective was initially 10 air vehicles with three associated ground control stations. The Tier 2 version had more sophisticated sensors than the Tier 1, and flight control was managed by a satellite data uplink rather than using

the cumbersome aircraft relay needed with the earlier version. The uplink capability was first demonstrated during a 2 December 1993 test flight of a *Gnat 750* UAV that transmitted imagery of various mobile targets including tanks.

The UAV JPO released an RFP for the Tier 2 UAV-Endurance in December 1993. Competition for the UAV-Endurance requirement included TRW teamed with IAI with an undisclosed air vehicle; Teledyne Ryan with a variant of its *Model 410*; and General Atomics with an improved *Gnat 750*. The procurement program was limited to US companies only due to access to sensitive new technologies. System integration included UHF and GFP Ku-band satellite communications, and EO IR and GFP-SAR sensor capabilities. The system characteristics included a payload of 450 lb, radius of action of 500 nm at 15,000 feet and endurance of at least 24 hours. The program schedule called for demonstration of the EO/IR sensor-UHF uplink prototype in six months, assembly of fieldable systems in 12 months, test of a SAR/Ku-band data link in 18 months, upgrade of the initial systems in 24 months and complete operational trials in 30 months.

Tier 2 Contract Award

On 7 January 1994, General Atomics was awarded a \$31.7 million cost-plus-fixed-fee (CPFF) contract for the Tactical Endurance UAV advanced concept technology demonstration. The contract will eventually entail the delivery of ten *Gnat-750-TE Predators* (a.k.a. *Gnat-750-45*) and three ground control stations. The satellite data-link for the system was provided by Unisys and the mission planning systems by Boeing Military Aircraft. Work was to be completed by June 1996. The program was developed under the new Advanced Concept and Technology Demonstration (ACTD), meaning that it was managed outside the usual Defense Acquisition Board process.

Tier 2 Predator Demonstration Program

The 30-month demonstration schedule called for initial flights by the first three air vehicles the summer of 1994 using the first ground-control station (GCS). This initial effort focused on air vehicle/sensor/GCS integration and demonstration of the EO sensor and UHF satellite datalink. By November 1994, the three first Predators had accumulated over 100 hour's flight time during 40 flights. By January 1995, four aircraft and the second GCS were delivered, and the systems were ready to go into the field at the JTF-95 or Red Flag exercises or to support unexpected international contingencies. A total of 10 Predators were under construction at the time. During the summer of 1995, the #9 and #10 Predators were under construction with a SAR sensor for delivery in December 1995. The UHF satellite datalink was later replaced by a Ku-band wide-band satellite datalink. This reconfigured system operated with the third GCS, also delivered by this date. Three more upgraded UAVs were ready by January 1996 and the retrofit of other UAVs began. There were ten full-capability Predators by June-July 1996.

Additional Predators to be Acquired

The Congress decided to add \$25 million to the FY95 budget (bringing it to \$45 million) to provide funding for five additional Predators fitted with a SIGINT capability and laser designators; the funding was earmarked to provide an additional ground control station suitable for SIGINT data reception.

Predator Deployed to Bosnia

A US DoD team was deployed with the Predator UAV system at Gjader, Albania, (55 mi north of Tirana) in July 1995 for operations over Bosnia. The original deployment apparently consisted of three air vehicles and one GCS; a fourth UAV was apparently sent later. The sortie rate

was about six per week with typical missions lasting 12 to 16 hours. Two UAVs were lost in August. The first was lost on 11 August when signals abruptly ceased while it was loitering at low altitude in an area to observe Bosnia Serb movements. Bosnian sources claimed to have shot it down and retrieved the wreckage that they said was being turned over to Russia for technical evaluation. The second loss on 14 August occurred after the Predator had climbed back to 20,000 ft for the flight home. The engine began to malfunction, and the GCS crew attempted to glide the UAV back to the Adriatic for retrieval. When it became evident that this would not be possible, the crew steered it into a mountain to prevent it from falling into Serb hands. A third Predator (No. 7 with the new Ku band SATCOM link) crashed during trials at El Mirage airport, California during trials but may be repairable.

After an interlude in 1995 when the unit was withdrawn, the Predator returned to Bosnia in March 1996 under Air Force control and conducted operations through February 1997. On its first mission, the Predator lost its satellite link but managed to fly back to its operating base at Taszar, Hungary. The redeployed unit had an upgraded version of the Predator with a synthetic aperture radar sensor. A Predator crashed in a minefield in October 1996 near Tuzla but was recovered with the assistance of Russian IFOR troops. A fourth Predator crashed while approaching the runway at Mostar in Bosnia on 11 August 1997 due to engine problems. The air vehicle was fitted with a SAR radar.

The operational tempo of the Predators in Bosnia in 1997 was described as about six missions per week.

Air Force Forms UAV Units

The US Air Force activated its first UAV unit since the Vietnam War on 29 July 1995 at Nellis Air Force Base, designated the 11th Reconnaissance Squadron of the 57th

Wing. This unit formerly operated RF-4C reconnaissance aircraft and later served as a tactical drone control squadron with DC-130 aircraft. Flight operations are expected to take place at Indian Springs Auxiliary Airfield, also in Nevada. The Predator was officially handed over the Air Force control in September 1996. As of August 1997, the squadron had 6 Predators, two of which were deployed in Hungary.

In August 1997, it was announced that a second squadron will be formed, the 15th Reconnaissance Squadron, also to be based initially at Indian Springs.

Predator for Customs Use

The Predator was used in a 1996 test program to examine its suitability for surveillance operations in counter-narcotics mission in support of P-3 Orion AEW&C aircraft. The report to Congress recommended against the use of the Predator in this role, citing high costs and performance shortcomings. However, the report recommended the use of the Predator in some missions, and noted that it was worth monitoring, particularly as the design matures.

Predator for Naval Use

A study conducted in 1996 concluded that adapting the Predator for operations from shipboard would be costly and cumbersome, and recommended against the effort. Such a program would have to include a new recovery system, a reconfigured control station, and a heavy fuel engine.

Although the Navy was skeptical about the use of Predator from ships, in 1997, the Navy was examining a derivative of the Predator, called the Altus 2, for possible use as a long-range reconnaissance platform for obtaining targeting data for long range strike systems such as SLAM-ER. A prototype of the system was first flown in August 1997. The Altus 2 was fitted with a data link for passing information back to F/A-18 strike fighters.

Predator Losses

A Predator UAV was lost on approach to Tuzla airport in April 1999 while returning from a mission over Kosovo. Total losses over Kosovo were reported to have been three air vehicles. A further three Predators were lost during the May 1999 Kosovo air campaign, two to enemy action.

An Air Force Predator was shot down over Iraq in September 2001. An additional Predator, apparently under CIA direction, was lost during a mission over Afghanistan in late September 2001, though apparently due to mechanical malfunction.

Predator losses through January 2003 were 27 air vehicles of the approximately 55 delivered to date. The Predator reached the 50,000-flight hour mark in October 2002, suggesting that the loss rate of the Predator was roughly one per 1,850 hours of flight time.

Altair

In January 2000, NASA announced plans to acquire three Predator B UAVs for its Environmental Research Aircraft and Sensor Technology (ERAST) program. The Predator B was developed jointly with company funds (\$8 million) and NASA funds (\$10 million). In contrast the existing Predator, the Predator B001 is powered by a Honeywell TPE331-10T turboprop engine and is substantially larger weighing more than twice as much on takeoff and with a 64 ft vs. 48-ft wing. The Predator B002 is powered by a Williams FJ44-2A turbofan. The Predator B has increased payload, going from 450 lb to 650 lb. The first test flight was completed in February 2001. Altair was the first civil UAV to receive an FAA airworthiness certificate in September 2005.

Predator Hunter-Killer

The Air Force began experiments with a Predator armed with the Hellfire missile in 2000. This program was originally intended to serve as a

testbed for future UCAV developments rather than as a forerunner for actual Predator missions. The first three firing tests were conducted in February 2001 and all three missiles hit the target. The initial tests were conducted from a relatively low altitude of only 2,000 feet. These tests continued, including plans to conduct further trials with AGM-114K missiles launched from altitudes over 10,000 feet. Through August 2001, 16 launches had been conducted up to an altitude of 15,000 feet with "mixed results". Although not planned for operational deployment, armed Predators were used with considerable success in Operation Enduring Freedom over Afghanistan in 2001-2002. In addition, an armed Predator was used in Yemen in 2002 to kill a top Al Qaeda operative. The MQ-1B was operated out of Djibouti under CIA direction with USAF personnel, and a car carrying Qaed Salim Sinan (a.k.a. Abu Ali) was destroyed by a single Hellfire missile. The success of this application led to the Air Force decision in 2003 to convert all RQ-1 to the MQ-1B hunter-killer configuration.

Navy Broad Area Maritime Surveillance

Although the Navy selected the RQ-4 Global Hawk for its original demonstrations of UAVs for the maritime surveillance role, it broadened its search for the definitive air vehicle at the procurement stage to consider Predator derivatives. One of the initial offerings was a turbo-jet powered version of the Predator, dubbed Predator C, but General Atomics, teamed with Lockheed Martin, offered a derivative of the Predator B, called Predator B-ER or Mariner. The prototype Mariner first flew on 22 April 2004. However, the Navy selected the rival RQ-4 Global Hawk for BAMS in April 2008.

MQ-9A Reaper

The success of the armed RQ-1A Predators led the Air Force to accelerate the development of a heavier

version of Predator, dedicated to the hunter-killer role. The Air Force selected the Predator B for this mission, now designated MQ-9A Reaper in Air Force service. Supplementary funding in the FY02 budget covered the acquisition of the first three MQ-9A, and a total of 23 Reapers were funded as part of the Predator line in FY02-07. After FY07, Reaper was funded on its own budget line. The first Reaper was built in January 2002 and first operational Reaper was delivered to Creech AFB in Nevada in March 2007. The Reaper became operational in both Iraq and Afghanistan in 2007.

By mid-2002, the Air Force objective was to acquire two MQ-9 squadrons, each consisting of 20 air vehicles and five ground control stations. The FY08 budget submission anticipated funding 51 Reapers through FY13.

The Air Force also began trials of other munitions from the MQ-9A including the JDAM bomb, and AGM-65 Maverick missile.

The Budget Roller-Coaster

The Air Force funded 102 air vehicles through FY04. Under the FY04 budget plan, the USAF was to fund 62 MQ-9A Predator B hunter-killer UAVs in the FY02-09 budgets, but under the FY05 budget this was slashed to 27 air vehicles and revised yet again in the FY06 budget back up to 101 Predator Bs through FY11. The FY07 budget submission in February 2006 again saw a major shift in procurement objectives. The USAF added a substantial number of Predators to the FY05-11 plan, going from 160 to 255 aircraft. At the same time, there was a pronounced shift in the composition of the planned force in favor of the MQ-1 over the MQ-9 versions. The MQ-1 objective increased from 59 to 218 aircraft while MQ-9 fell from 101 to only 37 aircraft in the FY05-11 plans. In the FY09 budget submission, the objective was a total of 416 Predators funded through FY13, with 198 having been funded through FY06. The

FY10 budget saw yet another shift with the Air Force deciding to terminate MQ-1 Predator acquisition in favor of Reaper, capping procurement at 320 MQ-1 through FY09, the last year of funding. The final MQ-1 Predator was delivered to the Air Force on 3 March 2011.

US Navy Armed Predator

In December 2005, the US Navy acquired a single MQ-9A Predator B for an undisclosed application, not associated with BAMS. The acquisition did not appear in the open budget. In late 2008, the Navy noted that it had in fact acquired four MQ-9 Reapers from November 2005 to March 2007 for a “sensor testing and integration project.”

US Army MQ-1C ERMP Sky Warrior

The US Army awarded a contract in May 2003 for three IGNAT UAVs based on the Predator to help define its UAV requirements for a tactical UAV with capabilities beyond those possible with the smaller RQ-7A Shadow for use at division/corps level. The RQ-5 Hunter was once considered a possible candidate for the Army’s Extended Range Multi-Purpose UAV, but a more capable platform was desired by the Army. ERMP is designed to fill a spot between the Army Shadow and the Air Force MQ-9 Predator B in capability. However, the Army wants to operate the ERMP using the existing GCS of the Shadow UAV, not an entirely new system infrastructure. The Army released the RFP for ERMP in September 2004. The program was planned to entail about four-five systems each with 12-18 air vehicles and five GCS; the FY09 budget plan envisions nine systems through FY13. The Phase I involved a down-select to two competitors which took place in early FY05 and included General Atomics (teamed with AAI and Sparta) with a Predator derivative called **Warrior**, a Northrop Grumman team with a version of the Israeli Heron called Hunter II. The General

Atomics Warrior was selected by the Army for the ERMP requirement on 8 August 2005. It was being referred to by the Army as **Sky Warrior**, though this changed in 2011 to Grey Eagle.

Funding for engineering development of the ERMP began in FY06 and was expected to cost \$280.5 million through FY11; the SDD phase was expected to be completed by 1QFY08 but in recent years, the Army has shifted to referring to the program as a “continuing” effort, with RDT&E funding continuing. The Army began procurement funding of the first system in FY08 with starting with low-rate initial production in FY08-FY10 and a full-rate production award at the end of FY09. The first “Block 0” aircraft flew on 6 June 2007; the first production configured air vehicle flew in April 2008. Although the Army had originally planned to wait for “Block 1” before fielding first unit in late 2009/early 2010, a supplementary contract was awarded in 2007 for six Block 0 aircraft to place capability in Iraq as quickly as possible. Two Block 0 aircraft were first deployed in Iraq in April 2008.

Border Patrol Predator

Congressional support for UAV technology prompted US Customs and Border Protection (CPB) to add UAVs to its aviation force. In 2004, CPB leased an Israeli Elbit Hermes and borrowed a US Army Hunter to conduct trials along the Mexican border as a possible tool for border patrol. The Hermes logged 590 hours of flight over four months and the Hunter a further 329 hours over three months. This demonstration prompted a Congressional addition to the CPB budget for the acquisition of a General Atomics Predator B in 2005 which began operations in October 2005 from Sierra Vista municipal airport along the Mexican border. The Predator crashed on 24 April 2006 due to apparent pilot error, but the program proved successful enough that Congress funded another

Predator which deployed in November 2006. CPB now has plans to fund UAV operations at about \$10 million per year. Congress funded two more Predators in the FY06 supplemental, and the FY07 budget funds two more. The additional UAVs will lead to expanded demonstration efforts with a Canadian border patrol demonstration to be based out of Grand Forks, North Dakota in the autumn of 2007 and a joint CPB/Coast Guard effort in Florida in the spring of 2007. In June 2009, a Predator began a three-week evaluation effort out of Fort Drum in upstate New York to patrol the St. Lawrence River and Lake Ontario along the Canadian border. The CPB effort is being controlled out of an integrated Air and Marine Operations Center in Riverside, California which facilitates coordination with the FAA. The CPB program is proving to be the ground-breaker for UAV airspace access issues and so could facilitate further UAV use by other government agencies.

In 2009, CPB pulled one of the Predators from patrol duty and sent it back to General Atomics for modification to make it more suitable for a planned deployment in a maritime patrol role; it was tested in this role for operations over the Great Lakes in 2010.

In May 2006, the FAA also gave the Air Force the green light to use Predators over the United States during disaster relief operations for search and rescue. Although the Air Force was ready to provide this capability in the wake of Hurricane Katrina in 2005, the missions were cancelled due to national airspace restrictions.

As of 2009, CPB had six Predator B aircraft, with the sixth entering service in February 2009. A seventh Predator B was added in 2010 and by 2011, the force had 8 Predators. One was lost off the California coast in January 2014. CPB conducted Operation Empire Shield through the summer of 2009 to examine the use of UAVs along the US frontier with

Canada on Lake Ontario and the St. Lawrence Seaway. The CPB Predators have also been used by other federal law enforcement agencies.

In 2014, CBP proposed increasing the drone force by 14 aircraft to 24 at a cost of \$443 million. This led to considerable criticism due to a relatively low operational rate in recent

years. In January 2015, the CBP announced that it had withdrawn its plans to increase its drone force.

Export Status**Australia**

The Mariner version of Predator has been offered to Australia as an alternative to the Global Hawk. A Mariner participated in a demonstration along the north-west Australian coast through 2007 pursuant to this program. However, Australia first decided to back the US Navy selection for BAMS, the Global Hawk, but subsequently deferred participating in the program.

Belgium

On 26 March 2019, the US Congress was notified of a letter of offer valued at \$600.0 million for four MQ-9B Sky Guardian MALE RPA, associated equipment and support.

Britain

Predator was one of the systems originally offered to satisfy the British Watchkeeper requirement but not part of the final bid package. This program is covered in a separate report in this section, and the Israeli Hermes was subsequently selected for this requirement. In early 2004, British officials began discussions with the US about borrowing or leasing Predators for use by British units in Iraq. A British operated MQ-1 Predator was involved in an airstrike in late 2004 using one of the leased aircraft. The UK also conducted a series of trials dubbed Falcon Prowl in early 2005 using a Predator B fitted with a Goodrich DB-110 recon system as a possible candidate for the RAF Long Range Long Endurance (LRLE) requirement to replace the Canberra PR9 photo recon aircraft sometime after 2006.

In 2006, Britain decided to purchase Predators with two Reapers (Predator Bs) ordered for delivery in April 2007. The Predators were assigned to the 39 Squadron based in

Waddington. In 2008-2009, the 39 Squadron has operated out of Creech AFB in the US alongside US Predator/Reaper units with a forward deployed detachment in Afghanistan to maintain the aircraft. On 3 January 2008, the Congress was notified of the proposed sale of 10 MQ-9 Reapers to the UK at an eventual cost of \$1.07 billion. The RAF already operated Reapers on loan from the USAF over Iraq in late 2007. The RAF's 39 Squadron had been operating its Reapers from Creech AFB in the United States, but in May 2011, the government announced plans to create a second squadron based on the former 13 Tornado Squadron and to move both squadrons back to RAF Waddington in the UK.

In October 2015, the British government announced that the MQ-9 Reaper would serve as the basis for its "Protector" UAS requirement. The plan is to replace the existing force of 10 MQ-9 Reaper Block 1 aircraft with more than 20 improved Reapers with greater range and endurance as well as added capabilities. The formal Main Gate decisions to acquire the Reaper was made by the MoD on 28 April 2016. In the meantime, Britain decided to acquire the Certifiable Predator B variant.

The Certifiable Predator B (CPB) is the General Atomics designation for a new variant of the Predator/Reaper designed to meet NATO standards (STANAG-4671) by 2017, and subsequently meet domestic FAA airworthiness certification standards. It adapts the existing Predator B/Reaper with the Advanced Cockpit Ground Control Station (GCS), as well as enhancements allowing operations in adverse weather including icing conditions. The Certifiable Predator B completed its first flight test at the General Atomics'

Gray Butte Flight Operations Facility near Palmdale, CA on 17 November 2016. Qualification testing for type certification will continue over the next two years, with deliveries to the UK Royal Air Force expected to begin in late 2018. General Atomics is building three company-owned CPB aircraft, along with two airframes designed specifically for full-scale fatigue and static testing.

On 16 November 2016, Congress was notified of a proposed letter-of-offer to the United Kingdom for the sale of the "Certifiable Predator B".

The estimated cost of the new CPB package for the UK is around \$1 billion. The package includes 16 Certifiable Predator B with options for additional 10; 8 Advanced Ground Control Stations with options for additional 4) and additional equipment and support. General Atomics was awarded a £100 million (\$125 million) contract in December 2016 to initiate the program. An MQ-9B was delivered to the UK in the summer of 2018 for demonstrations. The current plan is to deliver the first production SkyGuardian in 2023.

Canada

General Atomics has teamed with General Dynamics-Canada to offer the Predator to Canada for a maritime surveillance requirement.

France

In June 1997, the Predator was displayed at the Paris Air Show. The sponsor for the show was the French firm SAGEM which is teaming with General Atomics to interest the French government in the Altus derivative of the Predator for a French requirement for a high endurance UAV. France subsequently selected the Eagle, a derivative of the IAI Heron. The Predator was a contender

for the eventual French MALE requirement. In 2011, it lost to the Heron TP, through the decision created a political firestorm in Paris due to the higher cost of the Israeli offering. The decision was reconsidered under the new Hollande government with a decision to acquire Reaper to provide immediate capability in operations from Niger over Mali. On 27 July 2013, the Congress was notified of a letter of offer for 16 MQ-9 Reapers plus associated equipment at a cost of \$1.5 billion. Due to an urgent requirement for this capability for Operation Serval over Mali, the US expedited the transfer of the first two unarmed MQ-9s to France, with French pilots training in the US. The initial flight at Holloman AFB, NM took place on 24 September 2013. The two Reapers were deployed to Niamey, Niger in late December 2013 and operated by the ED-1/33 Belfort squadron starting on 16 January 2014. A third MQ-9 arrived in early 2015, two more in late 2016 and a sixth in early 2017.

It is expected that additional Reapers will be acquired through 2020 with the objective stated to be 12 aircraft. Armed versions will eventually be deployed. The plan is to have two of the four eventual systems in operation by 2017 and all four systems by 2019. In addition, it is expected that later aircraft will incorporate French sensors and subsystems. The current French five-year defense plan allots €650 million (\$873.3 million) to the acquisition of 12 MALE UAVs. Recent French press accounts put the price of each system at €150 million and the annual operations cost as €15 million.

In 2017, the French government indicated that the Reaper force would be armed, initially with the Hellfire missile but eventually with a “European solution”. MBDA has proposed a long-range version of the new French MMP ATGM, the MHT missile.

Germany

In 2007, the German air force announced plans to acquire a MALE UAS locally designated SAATEG. The requirement was for about five air vehicles, and Predator was competing against the Israeli Heron 450. General Atomics was teamed with Ruag Aerospace for this program. The Israeli UAS was selected in 2015.

Italy

Because of the Kosovo campaign, in May 2000, the Italian air force announced plans to acquire six Predator systems because of “lessons learned” during the Kosovo air campaign. The contract included four UAVs with payload and two without with delivery beginning in late 2001 and ending in 2002 and Meteor served as the Italian prime contractor; only five were delivered. One of the air vehicles was lost during training, reducing the force to four and one was heavily damaged during an accident in Iraq. Operational capability was reached in December 2004. Four Predators are operated by the 32 Stormo, 28 Gruppo Velivoli Teleguidata “Le Streghe” which deployed from its home base, Amendola AFB near Foggia, to Tallil AFB near An Nasiriyah in Iraq in January 2005. The UAV group reached 1,000 flight hours by early 2006.

In August 2004, Italy announced plans to acquire another 5 Predators, but to date this has been limited to two, one attrition spare and one more to fill out the original order for six. Predator assembly in Italy is undertaken by Galileo Avionica, a unit of Finmeccanica. In June 2004, the Italian parliament passed legislation to open Italian airspace to the Predator UAV for operations. Plans to acquire two more Predators in 2005 floundered due to budget problems, with the plans now shifted to the 2007 budget. In February 2008, the parliament approved the acquisition of four Predator B/Reaper by 2011 at an expected cost of \$117 million. The plan as of late 2008 was to acquire five air

vehicles and 3 GCS. Since the Italian air force plans to use these for reconnaissance, they will not be configured with hardpoints for weapons. On 19 November 2009, the US Congress was notified of the proposed sale of two MQ-9 Reapers to Italy at a cost of \$63 million.

After long delays, in 2015 the US government announced it had consented to arming the Italian Reapers.

Netherlands

On 6 February 2015, the Congress was notified of a proposed sale of four RQ-9 Reaper and associated equipment at a cost of \$339 million.

Pakistan

Pakistan approached the US in 2002 about acquiring Predator for border surveillance and has subsequently requested the Reaper.

Saudi Arabia

General Atomics has been developing an export-suitable version of the MQ-1B Predator and has been marketing it to Saudi Arabia.

Spain

On 6 October 2015, The US Congress was notified of a letter-of-offer to Spain valued at \$243 million for the sale of four MQ-9 Block 5 Reaper UAS plus associated equipment.

Turkey

In late 1992, the Turkish ministry of defense acquired test batches of General Atomics Gnat-700, AAI Falcon 600 and IAI Searcher UAVs for a local requirement. Turkey was also developing its own UAV called Witness. The two American companies received contracts for \$30 million each for a ground control station and six air vehicles each. However, Turkey ran into serious funding difficulties after the first three were delivered. The CIA asked Congress to fund the purchase of four Gnat 750s manufactured for Turkey to add to its fleet of Tier 1 UAVs. In the end, Turkey received two ground control stations and six Gnat-750 air vehicles in

1994 and ordered two more air vehicles as attrition spares in 1998.

UAE

General Atomics has been developing an export-suitable Predator-XP version of the MQ-1B Predator and has been marketing it to the UAE. In

February 2013, the UAE announced plans to sign a \$197 million contract with General Atomics for the acquisition of the Predator XP.

Current Developments

USAF Reaper Plans

MQ-9 Reaper under the FY12 budget plan was 396 aircraft through FY16 at a cost of \$7.36 billion with procurement ramping up from 24 aircraft annually to 48 aircraft in FY11. The FY14 budget cuts and sequestration hit the budget hard, dropping the FY14 request to only 12 aircraft instead of 48, and dropping the subsequent annual acquisition out to FY18 from 48 to 24 per year. The FY15 budget saw further cuts with the objective through FY19 cut to 343 with 204 funded thru 2012, 68 in FY13-15 and 71 in FY16-19. The FY16 budget saw some modest additions to the procurement plan for the MQ-9 Reaper, pushing the objective up to 361 aircraft with the last funding in FY19. The FY17 budget request marked another drop, ending new procurement in FY17 with a total of 347 Reapers. The FY18 budget saw another extension to 379 aircraft at a total program cost of \$7.8 billion. The FY19 budget request again increased the objective to 433 aircraft at a cost of \$9 billion with funding included through FY23. The FY20 budget saw a slight decrease to 430 aircraft at a cost of \$8.7 billion with the last funded in FY24.

Aside from the shift from Predator to Reaper procurement, the USAF expanded its development effort on the airframe through a set of improvement packages. The SDD Increment 1 package developed through FY10 includes GBU-38 multi-store capability, BRY-71 updates, GBU-12/EGBU-12 ripple launch capability, Lynx radar stationary target classifier and several other improvements. The SDD Increment 2 package developed in FY12-15 covered a universal armament interface, Small Diameter Bomb and JAGM missile capability, improved

navigation and communications suites and other upgrades.

The Air Force is continuing to fund extensive Ground Control System upgrades. A Multiple Aircraft Control (MAC) GCS configuration variant is being developed that will provide control of multiple aircraft and payloads. Near-term upgrades include Block 30 (new LINUX processors, high definition monitors, and ergonomic improvements) and Block 50 upgrades that integrate improved human-machine interfaces, open systems architecture, and improved crew habitability. GCS Block 50 leverages the Unmanned Aerospace System (UAS) Command and Control (C2) Initiative (UCI) government-owned open system standard to enable improved capabilities for situational awareness and multi-mission management monitoring and oversight.

The FY20 budget for Reaper modification saw the start of a new effort dubbed **SLAM** (System Lifecycle Agile Modernization) to develop improvements for existing systems and to field new capabilities for the baseline MQ-9 fleet.

In 2013, the Air Force announced intentions to examine an extended range version of Reaper. This version would have extended wings with additional fuel capacity. The ER version may eventually start with introduction of these features on new-build aircraft but could be extended back to the existing fleet by means of an upgrade effort. The enhanced version is expected to increase endurance to 42 hr for the ISR configuration and 35 hr to the armed configuration. The first flight of the ER version was completed on 26 February 2016.

Aside from procurement issues, the FY15 budget also led to open discussions about trimming the overall USAF RPA capabilities from the recent objective of 65 Combat Air Patrol to around 45 CAPs. The USAF is most likely to accomplish this by retiring the MQ-1 Predator force in favor of the MQ-9 Reaper. The Predators were largely retired by 2017.

MQ-1C Gray Eagle ERMP

The Low Rate Initial Production contract for the MQ-1C was awarded to General Atomics on 8 July 2010 following the successful completion of the Milestone C review in February 2010. The First Unit Equipped was scheduled for 3QFY11 and Initial Operational Capability I in 4QFY12. The Army has already fielded the QRC-1 and QRC-2 (quick reaction capability) units to Afghanistan. The first full company in service in Afghanistan was operational by March 2012.

Recent Army documents suggest that the program objective was one Warrior (now Gray Eagle) system in each of the ten divisions. The Army was planning to field 15 UAV companies, initially equipped with 9 MQ-1 Grey Eagles, increasing to 12 when fully fielded. The requirement was for 132 Block 1 air vehicles; the FY11 budget document suggested 158 air vehicles through FY15 at a cost of \$2.9 billion; the FY12 budget knocked this back down to 133 air vehicles at a cost of \$2.7 billion with major procurement funding ending in FY14. The FY14 budget moved around the funding a bit, extending new procurement to FY15, with the overall requirement for 152 aircraft. The FY15 budget cut back the objective to only 133 aircraft, with the last to be funded in FY15. In 2014, Congress backed an effort to manufacture

the final batches of the MQ-1C in an extended range configuration called IGE (Improved Grey Eagle). The FY16 budget increased the objective back up to 158 aircraft with the last to be funded in FY16. This objective was reaffirmed in the FY17 budget plan. The FY18 budget extended procurement to FY18 with an objective of 190 aircraft at a program cost of \$3.17 billion. In May 2017, the Army approved an Army Acquisition Objective for 204 MQ-1C aircraft. The FY19 budget request funds the final aircraft in FY19 at a program cost of \$3.5 billion. The FY20 budget extended the procurement two years to FY21 with an objective of 233 aircraft and a cost of \$3.8 billion.

The Army is funding a variety of supporting efforts including an Advanced Payload Development focused primarily on a SAR/GMTI payload, and a separate Tactical SIGINT Payload. In April 2008, the Army decided to adopt the Northrop Grumman Starlite SAR/GMTI instead of the General Atomics Lynx II. Lockheed Martin has been developing an advanced penetrating radar called Tracer for the US Army CERDEC for use on Grey Eagle.

USMC Reapers

The US Marine Corps in 2018 decided to begin to acquire the MQ-9

Reaper based on experiences in the use of USAF aircraft in Afghanistan. A total of 9 are expected to be funded in 2020-2022.

SOCOM MALET

The US Special Operations Command has been funding its MALET (Medium Altitude Long Endurance Tactical) program which adds mission-specific equipment to MQ-1 and MQ-9 aircraft to support SOCOM anti-terrorist operations. This includes mission payloads, weaponization and modifications to ground stations and the aircraft.

Predator XP Export Variant

General Atomics has developed the Predator XP specifically for export based on interest in the Middle East, notably the UAE and Saudi Arabia. General Atomics is also offering a variety of enhancements to Predator and Predator B. These include range extension through use of external fuel tanks along with associated reinforcement of the undercarriage. There are also wing extensions on offer. In the case of the Predator B enhancements, this extends flight time from 27 to 48 hours. In February 2013, the UAE announced plans to sign a \$197 million contract with General Atomics for the acquisition of the Predator XP.

Predator C (Avenger)

In April 2009, General Atomics revealed its privately developed Predator C, also known as Avenger. The first flight was conducted on 4 April 2009. In contrast to the previous members of the family, the Predator C is jet powered, using the P&W PW545B. The aircraft was aimed at the US Air Force's MQ-X Next Generation UAS requirement. In 2010, General Atomic has also unveiled a navalized version called Sea Avenger which was aimed at the Navy's UCLASS requirement (now MQ-25 CBARS; see report). With the cancellation of the MQ-X program in 2011, the Air force is now looking at Predator C as a possible member of the Predator/Reaper family. General Atomics announced plans to build four airframes, and the Air Force has apparently purchased at least two. The Predator C offers reduced radar signature, and substantially faster speeds. The new air vehicle will initially use the Goodrich MS-177 oblique photographic sensor. There have been reports that General Atomics has been building these aircraft at a rate of about one every nine months for a classified customer.

Teal Group Analysis

The main catalyst to the Predator has been the intelligence/surveillance demands of the operations in Iraq and Afghanistan which have significantly increased the procurement and operations tempo of the Predator/Reaper.

The decision to employ the Predators in a more versatile hunter-killer role considerably expanded interest in the program. The successful use of the Predator in this role over Afghanistan in 2001, Yemen in 2002, and Iraq in 2003 opened the Air Force's eyes to the possibility of having UCAV capability today instead of a decade away. The Reaper has proven to be exceptionally well suited to the

type of counter-insurgency operations in which the US is still engaged. As a result, the Air Force's acquisition plans for the Reaper continued to expand over the past few years. Although the CIA use of drones has attracted considerable press attention, it is likely that most of the approximately 80 UAVs operated under CIA guidance were acquired and operated through the USAF programs under Langley's direction.

The cancellation of the next-generation MQ-X program in 2011 opened the door to further Predator/Reaper acquisition. General Atomics has already moved into the

gap by offering the stealthy, jet-powered Predator C, with the USAF already acquiring a handful of airframes. This could be the interim next-generation platform.

The Air Force program has continued to increase in its objectives under the Trump administration, currently topping 400 aircraft through FY23.

The Army has selected the Predator's MQ-1C Grey Eagle derivative to complement is short-range RQ-7 Tactical UAV. As in the Air Force case, there has been a gradual creep upward in the procurement objective

over the past few years due to extensive use in combat theaters. Procurement funding is expected to end in the FY21 budget though a modification program is percolating along

Predator and its derivatives such as the Gnat 750 have already been exported in modest numbers, and it will not be surprising to see more exported late in the forecast period. General Atomics has been developing a version more suitable for export, and two candidates have already been briefed, Saudi Arabia and the UAE. State Department restrictions

have badly impacted Predator sales, with Jordan, the UAE and Saudi Arabia acquiring Chinese drones instead. General Atomics has revealed that it has prepared bid for an international customer for the Predator C, widely believed to be for an Indian requirement.

It is likely that the US Congress will keep a close eye on these exports due to MTCR problems, and they will probably be confined at first to close allies. So far, Britain, France and Italy are already operating the

Predator/Reaper, but the Netherlands, Belgium and Spain have already been approved. The Predator/Reaper has become the system-of-choice for most European air forces with the conspicuous exception of Germany.

The Predator has also been leading the way with sales into the civil/government market, first with experimental types such as the NASA Altair, but more recently with surveillance types such as the Border Patrol Predators.

Funding Forecast

| RDT&E (\$ Millions) | FY20 | FY21 | FY22 | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 | FY29 |
|--|------------|-----------|------------|-----------|----------|-------|-------|-------|-------|-------|
| BA7: Operational Systems Development (OSD) | | | | | | | | | | |
| PE# 0203744A Aircraft Modification | | | | | | | | | | |
| Proj. EB6 MQ-1C mods | 16.5 | 13.9 | 11.3 | 9.2 | 7.2 | 5.0 | 5.0 | 1.0 | 1.0 | 1.0 |
| PE# 0205219F MQ-9 Development & Fielding | | | | | | | | | | |
| Proj. 675246: MQ-9 Dev & Fielding | 155.0 | 236.0 | 168.4 | 172.0 | 43.0 | 65.0 | 65.0 | 135.0 | 125.0 | 125.0 |
| Procurement (\$ Millions) | FY20 | FY21 | FY22 | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 | FY29 |
| Army Aircraft Procurement: BA 01 Aircraft | | | | | | | | | | |
| MQ-1C Gray Eagle (quantity) | 54.0 (6) | 54.0 (6) | — | — | — | — | — | — | — | — |
| Army Aircraft Procurement: BA 02 Modification of Aircraft | | | | | | | | | | |
| MQ-1 mods | 14.7 | 14.1 | 1.7 | 1.5 | 1.5 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Navy Aircraft Procurement: BA 04 Other Aircraft | | | | | | | | | | |
| MQ-9 Reaper (quantity) | 77.0 (3) | 77.0 (3) | 77.0 (3) | — | — | — | — | — | — | — |
| Air Force Aircraft Procurement: BA 04 Other Aircraft | | | | | | | | | | |
| Other Aircraft | | | | | | | | | | |
| MQ-9 Reaper (quantity) | 361.4 (12) | 302.3 (9) | 502.1 (17) | 233.7 (2) | 57.4 (3) | 110.0 | 50.0 | 25.0 | — | — |
| Air Force Aircraft Procurement: BA 05 Modification of In-Service Aircraft | | | | | | | | | | |
| Other Aircraft | | | | | | | | | | |
| MQ-9 Mods | 383.6 | 188.6 | 161.3 | 164.6 | 11.9 | 120.0 | 120.0 | 220.0 | 220.0 | 120.0 |

Production Forecast

| User (Variant) | Through 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | Total |
|--------------------------|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|--------------|
| General Atomics | | | | | | | | | | | | |
| CIA (Gnat 750/MQ-1) | 45 | — | — | — | — | — | — | — | — | — | — | 45 |
| USAF (R/MQ-1) | 320 | — | — | — | — | — | — | — | — | — | — | 320 |
| USAF (MQ-9) | 286 | 24 | 35 | 28 | 19 | 16 | 17 | 5 | — | — | — | 430 |
| USMC (MQ-9) | — | — | — | — | 3 | 3 | 3 | — | — | — | — | 9 |
| USA (MQ-1C) | 154 | 29 | 14 | 30 | 6 | — | — | — | — | — | — | 233 |
| USG (Altair/Pred/Reaper) | 13 | — | — | — | — | — | — | — | — | — | — | 13 |
| Export (RQ-1/-9) | 46 | 4 | 4 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 118 |
| Total | 864 | 57 | 53 | 66 | 36 | 27 | 28 | 13 | 8 | 8 | 8 | 1,168 |