# USAF Reaching For Stealthy Surveillance Drones

*Aviation week*
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***An artist's impression of the Northrop Grumman RQ-180. Aviation Week***

**T**he U.S. Air Force is “aggressively” pursuing a long-range, stealthy unmanned surveillance aircraft to go places its high-altitude Lockheed Martin U-2S and Northrop Grumman RQ-4 Global Hawk cannot, according to the Pentagon’s director for defense intelligence warfighter support, Lt. Gen. Jack Shanahan.

Speaking after an event in Washington on Dec. 1, Shanahan—who led the aerospace service’s operational intelligence, surveillance and reconnaissance (ISR) arm until August 2015—confirmed what has long been suspected: the Air Force already has, is developing, or is planning to develop, a “penetrating ISR” aircraft, supporting a Defense Department-wide push for “high-end” warfighting capabilities to counter those of Russia, China, North Korea and Iran.

Shanahan says U.S. bases in the Pacific—namely Kadena Air Base on the Japanese island of Okinawa; Andersen AFB, Guam; and those in the Philippines—are “threatened unlike they’ve ever been threatened since World War II.” He is referring to new road-mobile, silo, submarine and ship-based ballistic missiles introduced by China and North Korea, with Beijing’s weapons being the most threatening because of maneuvering and potentially hypersonic re-entry vehicles.

Asked if the department needed a large, highly survivable unmanned aircraft to fly deep into regions guarded by advanced missile threats, Shanahan says “the department is aggressively working on capabilities to do everything you just said.

“It’s acknowledged that we need endurance, range, persistence; You don’t get that with a small UAV right now,” he says. “You do need something that can penetrate very sophisticated air defenses, loiter for long enough, and then come back to somewhere a very long way away.

“The ranges of the missiles we face, they can range Guam, Kadena and of course, the Philippines, so we need range, endurance, persistence and high altitudes. That’s not lost on the department,” he says.

Despite talking freely about the non-stealthy U-2S and RQ-4, the Air Force refuses to comment on known classified programs such as mid-size Lockheed Martin’s RQ-170 and larger Northrop Grumman’s RQ-180—which had been due to enter service in 2015. The service still won’t even discuss the current use of the Cold War-era Lockheed F-117, which retired in 2008 but remains in recallable, flying status at the Tonopah Test Range in Nevada by order of Congress.

The Air Force’s new low-observable drone is probably funded somewhere in the classified budget. Lockheed, Northrop and Boeing are each capable of building low-observable drones, whereas General Atomics Aeronautical Systems can offer semi-low-observable platforms such as the Predator C Avenger.

Lockheed Skunk Works has been pushing the hypersonic, unmanned SR-72, as well as a semi-low-observable reconnaissance type that repurposes the U-2’s engine and sensors, dubbed TR-X.

Shanahan says the Pentagon’s next spending blueprint for fiscal 2018-22 invests significantly in manned and unmanned airborne surveillance platforms across all the services, with particular emphasis on “persistence, resiliency, and broad-area coverage.”

He says the U.S. military will face a future conflict in some heavily defended region, against weaponry designed specifically to offset American advantage. For this reason, the Pentagon is investing in capabilities for today’s counter-terrorism operations while tooling up for future higher-end warfare.

“A future fight is inevitable,” he says. “To me, this is not a matter of if, but when, and we’re not as well prepared for it as we’d like to be.”

Shanahan says the Pentagon’s ISR portfolio should include a high-low mix, comprised of “low-observable, penetrating capability” as well as many of today’s assets such as the General Atomics MQ-9 Reaper and RQ-4 Global Hawk for operations in less defended regions.

Many advancements in autonomy for both aircraft and data processing of sensor feeds, or “upstream data fusion, are coming, Shannon predicts.

“The more fusion correlation I can do as close to the sensor as possible, the better off I am,” he says. “Human, open-source, signals intelligence, whatever, I need to bring that left.”

He also sees more investment in manned/unmanned teaming, and autonomous drones that can launch from a “mothership” such as the Boeing B-52H bomber. The Strategic Capabilities Office is already working on that concept as part of its “Arsenal Plane” project.

“We’re going to be looking at more autonomy in terms of smaller unmanned capabilities,” he says. “Imagine a B-52 launching 15 little drones of some type and then recovering them.

They’re working together and doing data fusion and correlation. I can’t get 1,000 more analysts to check that data, so we need to automate it.”

Shanahan says manned aircraft and human analysts will be around “for a very long time to come,” because people think critically, but autonomy speeds up the intelligence extraction process.

The defense authorization bill for fiscal 2017, which the House approved on Dec. 2, codifies the “sense of Congress” with regard to the development and fielding of high-end fighters, bombers and surveillance aircraft, which the legislation broadly terms fifth-generation combat capabilities. It recommends continued fielding of manned and unmanned aircraft with “multispectral” stealth design and self-protection systems, as well as highly modern avionics that fuse data from onboard and offboard sensors to give U.S. pilots a decisive advantage against adversaries in the air and on the ground.

“Maximum consideration” should also be given to the use of unmanned platforms that can fly into combat alongside manned warplanes such as the Lockheed F-22, F-35 or Northrop B-21, or operate alone on high-risk missions.

Congress also recommends the Pentagon invest in “high-fidelity live, virtual and constructive training systems,” as well as next-generation air-to-air and air-to-ground weapons that take maximum advantage of fifth-generation aircraft capabilities.