CONFERENCE CALL

By 2025, the CH-47 Chinook helicopter will be 70 years old. While the aircraft is currently effective, future threats and operations may require additional or different systems. (U.S. Army photo by MAJ Dan Hart, 1st Battalion, 5th Infantry, Fort Wainwright, AK.)

Looking to the Future in Army Aviation Science and Technology

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By 2025, the CH-47 Chinook will be 70 years old; the UH-60 Black Hawk, AH-64 Apache, and OH-58 Kiowa nearly 50 years old. These aircraft will still be flying with no new vertical-lift aircraft to take their place.

MG Anthony G. Crutchfield, Chief of the Army Aviation Branch and Commanding General (CG) of the U.S. Army Aviation Center of Excellence (USAACE), Fort Rucker, AL, has set 2030 as the "aim point" to start producing new vertical aircraft.

While current aircraft are still effective, future threats and operations may require additional or different systems, said MG William T. Crosby, Program Executive Officer Aviation. This means the Army must make a commitment to funding science and technology (S&T) for new aviation programs.

In separate sessions at the Association of the United States Army (AUSA) Institute of Land Warfare's Army Aviation Symposium and Exposition in January, Crutchfield and Crosby discussed a path forward for Army aviation.

Crutchfield told the AUSA audience at National Harbor, MD, that Army officials should not take the same approach to developing new aircraft as they did when the Army tried to develop the RAH-66 Comanche. Crutchfield compared the UH-1 program production timeline, started in 1952, with the Comanche program, started in 1982, as an example of how moving the "aim point" affects aviation programs.

"It took eight years from requirements to production for the UH-1. About 16,000 UH-1s were produced, with about 7,000 serving in the Vietnam conflict. Overall, the UH-1 has been serving the Army for more than 45 years with some UH-1s still flying today," Crutchfield said.

The Comanche, by contrast, was canceled in 2004. "I think we kept moving the aim point [of the Comanche]. We were looking to field the perfect

"How can you look to the future when you've got a $7 billion [budget] with just over $100 million in S&T?" asked Program Executive Officer Aviation MG William T. Crosby, then a brigadier general, Jan. 13 at the AUSA Institute of Land Warfare's Army Aviation Symposium and Exposition. (U.S. Army photo by Todd Mozes.)

aircraft. There is nothing perfect. We lost sight of the goal," Crutchfield said. "Even though technology will change and the environment will change, the aim point needs to remain the same."

Crutchfield noted that after 22 years in the Comanche timeline, only two aircraft were produced, versus the UH-1's eight-year timeline, in which 16,000 were made.

Aviation Portfolio

As the life-cycle manager of manned and unmanned aviation weapon systems, Program Executive Office (PEO) Aviation is tasked with supporting overseas contingency operations while also maintaining Army aviation for the Current Force and transforming for the Future Force. The PEO manages seven project offices and 2,250 personnel, with a Program Objective Memorandum (POM) of $35 billion in FYs 10-15 and foreign military sales case value of $7 billion.

But while PEO Aviation's total FY10 budget was $7 billion, its S&T budget was only $107 million.

"How can you look to the future when you've got a $7 billion [budget] with just over $100 million in S&T?" Crosby asked. "How can you modernize? How can you sustain? How can you go to the next vertical-lift technology?"

The operational tempo of Army aviation is high, Crosby noted, with more than 4.3 million flight hours since February 2003. Crosby advised that flying aircraft at this rate greatly shortens their life cycle; a projected 20-year life cycle can be compressed to five years. Reset, while it can extend the life of the aircraft, doesn't negate the wear and tear on that aircraft.

"Are we going to continue to sustain these aircraft for another 20, 30, 40 years?" Crosby asked the AUSA audience. "That's the struggle we're going to be looking to resolve." The only new aircraft program in the PEO Aviation portfolio is unmanned aerial systems, he noted. Every other program is one of modernizing or upgrading existing platforms.

Combat Multipliers

Crutchfield's personal commitment to Army aviation, he said, is to remain the "combat multiplier of choice" for the Army's ground maneuver commanders, provide resolute leadership in supporting continuous combat operations, and prepare for the future.

"Nothing is more important than how we train and sustain the flow of highly qualified aviation professionals to rapidly meet the demands of commanders worldwide and expertly employ the full-spectrum capabilities aviation brings to the Army and the Joint Force," he said. "I want to know what's good about Army aviation and what can be improved, so we can meet the demands of the commanders and Soldiers in the field."

Crutchfield referred to a series of "aviation imperatives" that are necessary to meet his goals:

- Work as a team
- Be rapid and responsive
- Keep "cost culture" in mind
- Professionally develop the aviation force
- Maintain strong relationships with local, regional, and national communities
- Eliminate the aviation training backlog
- Significantly reduce aviation accidents

Learning from the Past

Crutchfield stressed the importance of past experience in looking forward. "We're here today because of young Soldiers," he said. He reminisced that when he was training as a young second lieutenant, he learned how to fly on the UH-1 Hueys under the instruction of Vietnam veterans, whom he called "visionaries." He eventually flew the AH-64 Apache helicopter in *Operations Desert Shield* and *Desert Storm*.

"They knew we would need new aircraft and equipment. I owe the same vision to today's young Soldiers," he said. "They will not fight the same war we are. Twenty-five years from now, I don't want them, I don't want my grandchildren, to fly the AH-64Z." Currently, the Army uses the AH-64D Apache Longbow.

"Our [aviation] branch has to lay out what it needs, and it must be done now. It's all about the future," Crutchfield said. "We may not get all we want, but we're going to get all we need. We must have a healthy aviation branch, postured for full-spectrum operations in defense of our Nation and our national interests. We may not get it all right, but we must not get it all wrong," he said.

Looking Ahead

Current vertical-lift platforms are critical enablers in today's conflicts. Without planning for their future, Army aviation will be unprepared when these platforms need replacing, Crosby said. Almost 50 percent of future vertical-lift decision points (e.g., whether to begin acquisition of replacement aircraft) occur within the next 10 years, and 85 percent within the next 15 years.

Crosby cited several studies on Army aviation that indicate the path it should take and the resources to get there. The Aviation Capability Based Assessment, approved by the Army Capabilities Integration Center in April 2010, identified 22 areas in which Army aviation was lacking for the projected future. The Office of the Secretary of Defense Future Vertical Lift Initiative Report went to Congress Aug. 27, 2010.

The Future Vertical Lift Joint Multi-Role Study, a joint effort led by the Army, is ongoing. In S&T, the U.S. Army Aviation and Missile Research, Development, and Engineering Center is conducting a Joint Multi-Role Capability Technology Demonstration Program through 2019. These analyses indicate the need for a new generation of vertical-lift platforms, with fielding beginning in 2025.

Crosby advised that despite the evident need to look at future airframes, Army aviation should not expect any new aircraft Programs of Record (PORs) in the FY12 POM. Even if Army aviation did get a POR, it faces a fiscal dilemma. "Where can you get the money to do [it]? What are you going to trade and give up from the other systems to fund that effort? Or do you continue to accept risk in that area?" Crosby asked.

Crosby likened deferral of S&T investments in Army aviation to continually upgrading an old system in the unrealistic hope that it will keep working indefinitely. (Photo courtesy of AUSA.)

"The bottom line that really concerns me is deciding where the major investments need to be and how do we fight for and sustain the resources," he said.

The Army needs to decide if it's going to continue to use old aviation designs or put money into new vertical-lift technology, Crosby said. "You can't keep adding new upgrades to an old heating system forever, because eventually it will fail. We need to start saving for that new heating system before it quits, or it's going to be a cold day in hell when it does," he said. Currently, "we wait until it's broken to fix it."

There is no established solution to the budget challenges for Army aviation, but it's clear that a major investment in S&T is critical for the future, Crosby said. "We're going to need to make some hard decisions and risks in some areas to apply the proper resources in S&T."

The slides from Crosby's presentation are available at ***http://www.crprogroup.com/2011%20AVIATION%20PRESENTATIONS/Thurs/PM/BG%20William%20Crosby.pdf.***

The slides from Crutchfield's presentation are also available at ***http://www.crprogroup.com/2011%20AVIATION%20PRESENTATIONS/Friday/BG%20Anthony%20Crutchfield.pdf.***

MG Anthony G. Crutchfield, then a brigadier general, Chief of the Army Aviation Branch and CG USAACE, speaks at a Fort Rucker Garrison Workforce Briefing Jan. 18, 2011. (U.S. Army photo by Kyle Ford.)

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