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MEMORANDUM FOR CHAIRMAN, DEFENSE SCIENCE BOARD

SUBJECT: Terms of Reference – Defense Science Board Task Force on Homeland Air Defense

Increasing adversarial capability and capacity challenge the United States to provide homeland air defense for our nation. Proliferation of enemy weapon systems with global reach dictate that the United States can no longer presume domestic sanctuary. Affordable defensive coverage across broad domestic areas of the continental United States is a challenge. New technologies and architectures to sense, track, and interdict threats promise new solutions to this problem.

The Defense Science Board Task Force on Homeland Air Defense will consider the most effective science, technology, capability, system, and operational vectors to maintain superiority beyond the next decade in the face of advancing threats from the surface, subsurface, air, space, and cyberspace. The goal of the Task Force is to develop recommendations regarding an architectural solution to this challenge for consideration by the Deputy Secretary of Defense and the Under Secretary of Defense for Research and Engineering. These considerations should include:

Objectives: What is the nature of homeland air defense now, in 2025, and in 2035? What priority offensive and defensive requirements are essential to ensure air defense from land, sea, air, space, and cyberspace threats across a range of scenarios?

Threat: What capability gaps must be addressed for air defense in 2025, 2030, and 2035 considering projected adversary full-spectrum threats to include capabilities (e.g., platforms and payloads); tactics, techniques, and procedures; vulnerabilities; and increasing speed, precision, and lethality?

Technology and Systems: How do we ensure comprehensive, affordable, scalable, and sustainable capabilities to counter a persistent peer adversary? What technologies provide advantage (e.g., railguns, directed energy, cruise missiles, hypersonics, autonomous vehicle swarms)? How can speed of innovation, acquisition, and fielding be achieved to sustain an air defense advantage over time? What is the most effective mix of offense and defense of systems and integrated capabilities? What effective and affordable capabilities are domestically deployable to respond to regional threats?

Strategy and Operations: How can air defense objectives be best accomplished? What innovative concepts of operation (e.g., autonomous swarms, human-machine teaming) will yield the greatest benefit? What is the most effective system strategy for evolving and ensuring resilience and superiority in an increasingly contested operational environment? What strategies best ensure superiority over the long term to deny adversaries access?

Deterrence: What are the most attractive cost–benefit options to persistently impose costs and deter adversaries?

This study will be sponsored by me as the Under Secretary of Defense for Research and Engineering, who is authorized to act upon the advice and recommendations of the Board. Dr. Mark Maybury and Mr. Mark Russell will serve as co-Chairmen of the study. Mr. David Moreau will serve as the Executive Secretary. Mr. Kevin Doxey will serve as the Defense Science Board Secretariat.

The task force members are granted access to those Department of Defense (DoD) officials and data necessary for the appropriate conduct of their study. The Under Secretary of Defense for Research and Engineering will serve as the DoD decision-maker for the matter under consideration and will coordinate decision-making as appropriate with other stakeholders identified by the study's findings and recommendations. The nominal start date of the study period will be within three months of signing this Terms of Reference, and the study period will be between 9-12 months. The final report will be completed within six months from the end of the study period. Extensions for unforeseen circumstances will be handled accordingly.

The study will operate in accordance with the provisions of Public Law 92-463, "Federal Advisory Committee Act," and DoD Instruction 5105.04, "DoD Federal Advisory Committee Management Program." It is not anticipated that this study will need to go into any "particular matters" within the meaning of title 18, United States Code, section 208, nor will it cause any members to be placed in the position of action as a procurement official.

Michael D. Griffin