GAO Highlights

MISSILE WARNING SATELLITES

Space Development Agency Should Be More Realistic and Transparent About Risks to Capability Delivery

GAO-26-107085 January 2026

A report to congressional committees

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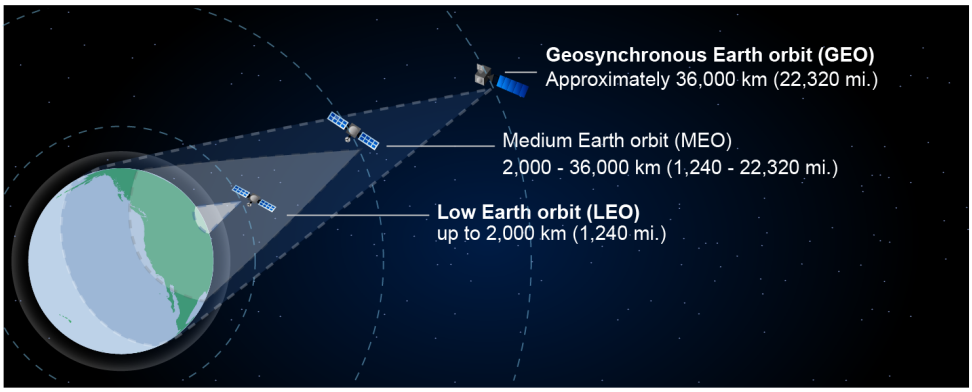
What GAO Found

The Space Development Agency (SDA) is developing space- and ground-based systems to detect and track potential missile threats in low Earth orbit. SDA aims to rapidly deliver capability and frequently update technology by delivering multiple satellites in phases, which it calls tranches, planned for contract award every 2 years. Each tranche needs to be replaced roughly 5 years after launch.

However, SDA is at risk of being unable to deliver capability as quickly as planned. For example, SDA is overestimating the technology readiness of some critical elements it plans to use. This includes the spacecraft, which must be modified for the mission. As a result, contractors have performed additional unplanned work, which has added to already delayed schedules.

Earth Orbits with Missile Warning Satellites



Source: GAO illustration (image not to scale). | GAO-26-107085

Additionally, SDA's requirements process is not transparent to users. For example, SDA is not sufficiently collaborating with combatant commands, which report having insufficient insight into how SDA defines requirements and when, or whether, SDA will deliver planned capabilities. Consequently, SDA is at risk of delivering satellites that do not meet warfighter needs.

SDA reports achieving early milestones, but these achievements do not reflect schedule risks. SDA has continued to award new tranche contracts every 2 years irrespective of satellite performance. SDA relies on contractor schedules for each tranche but has not developed an overall or architecture-level schedule. Using an architecture-level schedule to monitor schedule risks would better position SDA and stakeholders to understand earlier how schedule changes affect SDA's progress in delivering capabilities.

In addition, the Department of Defense (DOD) does not know the life-cycle cost to deliver missile warning and tracking capabilities because it has not created a reliable cost estimate. SDA required limited cost data from contractors for tranches 1 and 2. Requiring more complete and frequent cost data moving forward would enable DOD to develop reliable cost estimates for future tranches.

Why GAO Did This Study

DOD is developing large constellations of satellites for missions that include missile warning and tracking. SDA's effort—known as the Proliferated Warfighter Space Architecture—plans to have at least 300-500 satellites in low Earth orbit. This constellation is expected to cost nearly $35 billion through fiscal year 2029. Given the design life of the satellites, each one must be replaced about every 5 years.

A Senate report contains a provision for GAO to assess DOD's efforts to develop these capabilities. GAO's report (1) describes SDA's efforts to develop and deliver missile warning and tracking capabilities; (2) identifies risks SDA faces delivering these planned capabilities; (3) assesses aspects of SDA's requirements process; and (4) evaluates the extent to which SDA is meeting schedule milestones and cost estimates.

GAO reviewed relevant program, DOD, and contractor documents; assessed SDA's schedule and cost estimates against best practices; conducted site visits to a ground operations center, the Boulder Ground Innovation Facility, which analyzes satellite data, and seven contractor sites; and interviewed SDA and DOD officials and three combatant commands.

What GAO Recommends

GAO is making six recommendations, including that SDA should assess the technology readiness of new critical technologies; collaborate with warfighters on requirements and deferred capabilities; develop an architecture-level schedule and a reliable, data-informed cost estimate; and include requirements for cost data in new contract awards. DOD concurred with five of the recommendations and partially concurred with one recommendation.