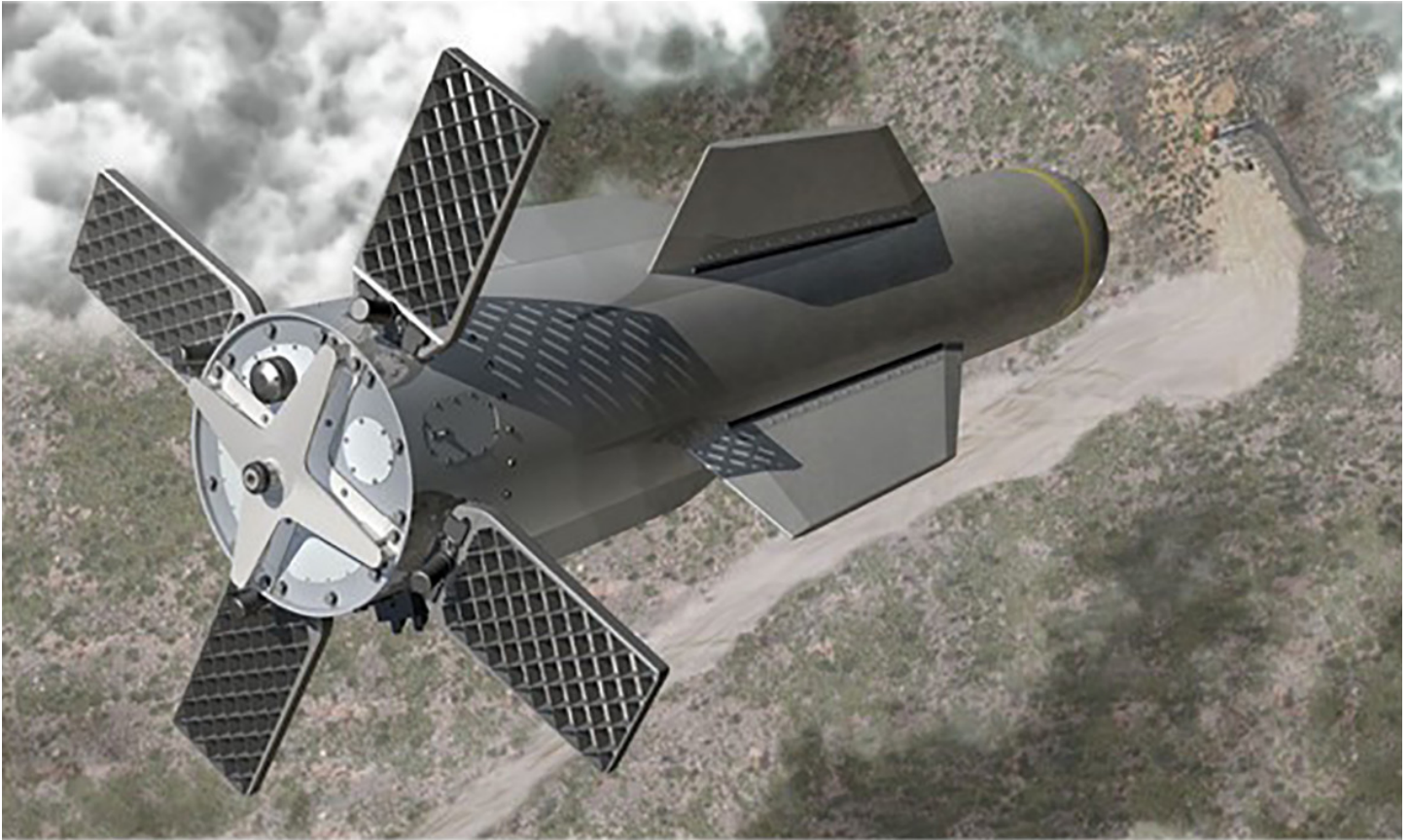


Massive Ordnance Penetrator (MOP) Modification



In June 2025, the GBU-57 Massive Ordnance Penetrator (MOP) was successfully employed in a real-world event, during the significant B-2 bomber strike. According to the Chairman of the Joint Chiefs of Staff (CJCS), all 14 weapons met release parameters, guided accurately to their aimpoints, and functioned as intended. In July 2025, DOT&E removed the MOP Modification program from oversight.

SYSTEM DESCRIPTION

The GBU-57 MOP is a large, GPS-guided, penetrating weapon designed to attack hard and deeply buried targets (HDBTs) such as bunkers and tunnels. The GBU-57 warhead is intended to be more lethal than its predecessors, the GBU-28 and GBU-37. The Large Penetrator Smart Fuze (LPSF)

integrates advanced smart fuze capability into the MOP warhead, providing increased probability of kill against HDBTs by mitigating the risk of target intelligence uncertainty. The B-2 Spirit is the only aircraft capable of employing the MOP.

MISSION

Combatant commanders use MOP to achieve national security

objectives with a low-observable, platform-deliverable, conventional HDBT-defeat capability.

PROGRAM

The GBU-57 MOP Modification is an Acquisition Category II program. DOT&E placed the original MOP program on oversight in 2011 and transferred oversight focus to the MOP Modification program in February 2021.

The Air Force established the LPSF Quick Reaction Capability program in August 2018 to respond to an urgent operational need, validated in July 2018, to integrate and qualify a smart fuze capability into the MOP that had been previously fielded as the Enhanced Threat Response weapon modifications. This upgrade, known as MOP Modification, provides the capability to hold at risk additional high-value HDBTs with limited threat intelligence.

The MOP Modification program intends to finalize the smart fuze software, improve weaponeering tactics, and validate through demonstration, lower-risk smart fuze capability against a full-scale, high-fidelity underground target.

Due to program funding reprioritization, Defense Threat Reduction Agency (DTRA) contract challenges that affected the ability to construct targets to support testing, and modifications to the delivery platform, the MOP Modification program was unable to execute planned testing in FY21 and FY22. The Air Force rescheduled the test events, and target construction commenced in FY25.

In June 2025, the MOP was successfully employed in a real-world event. As briefed by the CJCS, all 14 weapons met release parameters, guided accurately to their aimpoints, and functioned as intended.

DOT&E removed the MOP Modification program from oversight in July 2025.

» **MAJOR CONTRACTOR**

- Boeing Defense, Space & Security – St. Louis, Missouri

TEST ADEQUACY

Subscale lethality testing was reduced in scope (by approximately 50 percent) due to funding redirection from the Air Force and test execution cost growth within DTRA.

In FY25, subscale phenomenology testing validated enhanced weaponeering capabilities.

PERFORMANCE

» **LETHALITY, SUITABILITY, AND SURVIVABILITY**

DOT&E provided a classified assessment of the Enhanced Threat Response weapon modifications in the November 2017 early fielding report of the currently fielded MOP configuration. DOT&E sent a classified memorandum to the Secretary of Defense in August 2024, providing an update on the MOP integration with the B-2.

RECOMMENDATIONS

The Air Force should:

1. Continue funding LPSF T&E activities outlined in the draft TEMP in order to successfully complete adequate testing and eventual fielding of the LPSF.

DTRA should:

1. Continue efforts to streamline their contracting and test plan review processes to minimize delays and cost growth for target construction and test

execution, as recommended in the FY22 – 24 Annual Reports.