2007.[136] To meet allowed totals for deployed warheads under SORT, the Trident II (D-5) may be downloaded to carry as few as three warheads (from the current payload of eight).[137] The Ohio-class SSBNs are expected to remain in service for over twenty-five more years with the first one retiring in 2030, and the Trident II (D-5) will remain in production at a rate of twelve missiles per year until at least 2011 to ensure missile availability through the remainder of the submarines' service lives.[138]

Today, the Navy's emphasis for increased conventional striking power is placed on the SSGN conversion effort. There are no funded plans to arm the Trident II (D-5) with conventional warheads, but there was an effort to increase the missile's effectiveness in its nuclear role that could have implications for future conventional warhead efforts. The D-5 Enhanced Effectiveness (E2) Program was to have been a three-year effort culminating in a flight test of a more accurate reentry vehicle.[139] Unfortunately, the Navy's initial funding requests for this initiative were rejected by Congress in fiscal years 2003 and 2004 and it has not requested funds again since then.[140] The goal of the E2 program was to enhance the missile's ability to conduct prompt, highly accurate strikes and reduce collateral damage through the use of a lower- yield warhead.[141] The project combined the existing Mark 4 reentry vehicle and W-76 100 kt warhead from the Trident I (C-4) with a reentry vehicle body extension that integrates existing inertial measurement unit (IMU) and GPS technologies and a flap steering system.[142] The integrated assembly is similar in size and weight to the Mark 5 reentry vehicle/W-88 warhead combination that the Trident II (D-5) normally carries.[143] The E2 program sought increased accuracy through a three-step process: 1) the modified reentry vehicle's integrated IMU initializes with inputs from the D-5's missile guidance set, 2) the reentry vehicle receives and applies a GPS update to the IMU while in

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[136] Defense Science Board, sec. 5, p. 5.

[137] Woolf, 29.

[138] Defense Science Board, sec. 5, pp. 6 and 11.

[139] Ibid., sec. 5, p. 6.

[140] Amy F. Woolf, *Conventional Warheads for Long-Range Ballistic Missiles: Background and Issues for Congress* (Washington D.C.: Congressional Research Service, 2005), 8, CRS, RL33067.

[141] Defense Science Board, sec. 5, p. 6.

[142] Ibid, sec. 5, p. 7.

[143] Ibid.

exoatmospheric flight, and 3) during reentry the IMU provides steering inputs to the control flaps to steer the warhead to its target with GPS-like accuracy.[144] While the E2 Program is intended to upgrade the D-5's nuclear warfighting capability, the program's technology could be applied to a conventional PGS system. Despite the lack of official program funding, Lockheed Martin conducted E2-related reentry vehicle flight tests in conjunction with Trident launches in 2002 and 2005.[145] These tests demonstrated the modified reentry vehicle's ability to maneuver to the target with greater accuracy and decelerate to "control impact conditions."[146]

D. CONCLUSION

Current global strike capabilities are a product of the Cold War. Heavy bombers were developed with ever-increasing reach and survivability and ballistic missiles shortened the time necessary to strike targets at global ranges from hours to minutes. All American global strike systems were originally developed and deployed to deliver nuclear weapons. The paradigm that associates strategic (i.e., long-range, nuclear capable or formerly nuclear capable) systems exclusively with nuclear war has proven difficult, but not impossible to break. Many of the weapon systems described in this chapter have successfully transformed from dedicated instruments of Armageddon into dual-role or conventional-only platforms. The B-52, B-1, B-2, ALCM, and Ohio-class submarine serve as cases in point and demonstrate that it is possible to offload "nuclear baggage" and adapt existing weapon systems to address new national security needs that were not necessarily envisioned when the systems were originally built. These cases also point out, however, that it is advisable to approach the first combat employment of a newly transitioned weapon system with caution since it may take time for other nations to adjust to the change.

The glaring exception to the above nuclear-to-conventional success stories is the intercontinental missile. Historically, the primary reason for this has been technical. Until relatively recently it has not been possible for a missile to deliver a conventional warhead over intercontinental ranges with sufficient accuracy to be effective. A CEP of

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[144] Defense Science Board, sec. 5, p. 5.

[145] Woolf, Conventional Warheads, 8.

[146] Ibid.