

## Bradley Family of Vehicles (BFoV) Engineering Change Proposal (ECP)

### Executive Summary

- In September 2016, DOT&E approved an updated Test and Evaluation Master Plan (TEMP) to support the Engineering Change Proposal (ECP) production contract award scheduled for June 2017.
- In 2017, the Army continued efforts to test and improve the Bradley's reliability prior to the FOT&E in 4QFY19.
- The program is using developmental testing to identify and correct current M2A4 and legacy M2A3 failure modes. While ECP2 is not meeting its reliability requirement in ongoing developmental testing, reliability for ECP2 is improving.
- The Army has created an integrated planning team to assess and recommend corrective action for current and legacy faults.

### System

- The Bradley Family of Vehicles (BFoV) ECP program intends to integrate new technologies so that existing system performance is not further degraded. The ECPs are not intended to exceed the operational capability outlined in current system requirements documents.
- The initial phase, known as ECP1, was a suspension and track upgrade, which began in FY11 to restore ground clearance and suspension reliability because of increases in Bradley armor and weight. ECP2 will upgrade the electrical system and power train to restore lost mobility and integrate new technologies to improve situational awareness and vehicle survivability.
- Installation of ECP1 and ECP2 kits will result in the conversion of existing M2A3 version Bradley Fighting Vehicles into the M2A4 version and the M7A3 Bradley Fire Support Team vehicle into the M7A4 version.
- The current plan is that all Bradley A3s will become A4s. The A3 baseline configuration includes the additional Bradley



Urban Survivability Kits, Bradley Reactive Armor Tiles, and Add-on Armor Kit that the Army developed and fielded in response to Operational Needs Statements during Operation Iraqi Freedom.

### Mission

Combatant Commanders employ Armor Brigade Combat Teams equipped with Bradley Fighting Vehicles to provide protected transport of soldiers, provide direct fires to support dismounted infantry, to disrupt or destroy enemy military forces, and to control land areas.

### Major Contractor

BAE Systems Land and Armaments – Sterling Heights, Michigan

### Activity

- In September 2016, DOT&E approved an updated TEMP to support the production contract award for ECP2 originally scheduled for June 2017. Government changes in desired quantity, a late delivery of the proposal by the contractor, and increased cost per vehicle estimates by the contractor have resulted in a slip in the production contract award to February 2018 (estimated).
- The Army continued efforts in 2017 to test and improve ECP2 reliability prior to the FOT&E in 4QFY19. The program created an integrated planning team to assess and recommend corrective action for current and legacy reliability failure modes.

- Due to unexpected reliability problems, developmental testing was increased to verify design changes for corrective actions, software updates, and reliability improvements, which have resulted in potential trade-offs in approved developmental and operational test scope. An updated TEMP is being developed for review and approval.

### Assessment

- The program focused early developmental testing on identifying and correcting current M2A4 and legacy M2A3 failure modes. As a result, ECP2 is not meeting its reliability

# FY17 ARMY PROGRAMS

requirement in ongoing developmental testing. ECP2 averaged 281 mean miles between combat mission failures in August 2017. The requirement is 400. Reliability is improving.

- Seventy-six percent of combat mission failures are hardware to include failures of power pack components. The largest single cause of combat mission failures in early testing were transmission oil cooler (TOC) failures. The program designed and implemented a fix for TOC failures. The fix was verified in developmental testing. The program continues to design and implement fixes for remaining failure modes.
- ECP2 software version R1 is not mature and not reliable. Software version R1.1 is expected to correct nuisance faults

and is scheduled for formal release in February 2018. The Army will address remaining software reliability problems with an additional R2 Software drop in February 2019 prior to the FOT&E in 4QFY19.

- The Army is working with the contractor to reduce ECP cost increases and is expected to have a production contract award in 2QFY18 or 3QFY18.

## Recommendations

- Status of Previous Recommendations. The Army addressed the previous recommendation to conduct technical testing of survivability improvement kits and modifications.
- FY17 Recommendations. None.