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## **Weapons Characterization for Accelerating Small Arms Testing**

**Kevin Ferguson, Zachary Hall, Andrew Lee, and Myles Walters**

United States Military  
Academy  
West Point, New York

Corresponding author's Email: [myles.walters@usma.edu](mailto:myles.walters@usma.edu)

**Author Note:** First Class Cadets Ferguson, Hall, Walters, and Lee are seniors at the United States Military Academy (USMA). This report is their final portion of their Systems Engineering coursework at USMA. The cadet team would like to thank our project client from the US Army Armaments Research, Development, and Engineering Center, Mrs. Dawn Casey and our capstone advisor, Dr. Christopher Morey.

**Abstract:** Project Manager (PM) Soldier Weapons develops, produces, fields, and sustains new weapon equipment for Soldier use (PM SW, 2016). A continuing goal for PM Soldier Weapons is to reduce the time and cost it takes to develop new weapon technology, including targeting optics. PM Soldier Weapons is investigating using a “shock table” to replicate small arms effects on optics resulting from firing a weapon over its lifecycle. Use of the shock table will theoretically reduce the development timeline. This study used a weapon firing simulator to collect live fire data, transformed the data into a life-cycle schedule for the shock table to investigate testing timeline impacts. The final results from this study are forthcoming and are expected to reveal that use of a shock table, as envisioned by PM Soldier Weapons, in place of live-fire life-cycle weapons testing will benefit the testing and acquisition process.