1086-VN-2564 **Andrew C Lee*** (andrew.lee2@usma.edu), 3320 E. Continental Rd, West Point, NY 10996.
Optimized Routing of Unmanned Aerial Systems to Address Informational Gaps in Counterinsurgency.

Recent military conflicts reveal that the ability to assess and improve the health of a society contributes more to a successful counterinsurgency (COIN) than direct military engagement. In COIN, a military commander requires maximum situational awareness not only with regard to the enemy but also to the status of logistical lines of operation (LLO) support concerning civil security operations, governance, essential services, economic development, and the host nation's security forces. By incorporating these LLO targets into the mission planning cycle with a collective UAS effort, commanders can gain a decisive advantage in COIN. Based on the type of LLO, some of these targets might require more than a single observation to provide the maximum benefit. This thesis explores an integer programming and metaheuristic approach to solve the Collective UAS Planning Problem (CUPP). The solution to this problem provides optimal plans for multiple sortie routes for heterogeneous UAS assets that collectively visit these diverse secondary LLO targets while in transition to or from primary mission targets. (Received September 25, 2012)