Forecasts of UAS activity show dramatic increases in their utilization in the National Airspace System (NAS) over the next 25 years. Preliminary steps taken by the Federal Aviation Administration (FAA) and users to integrate UAS and manned aircraft through a special waiver process have been successful in maintaining a high level of safety. The expected increases in the number of both manned and unmanned aircraft in the NextGen timeframe suggests that seamless operation and integration of UAS and other aircraft within all domains of the NAS is a requirement which must be addressed.

The MITRE Corporation is researching the feasibility of small (less than 55 pounds) UAS conducting cooperative autonomous separation assurance. This concept envisions small UAS equipped with compact, rugged systems designed to provide positive, timely, efficient adjustment of trajectory to avoid appropriately equipped manned aircraft, and then to efficiently return to mission profile without required intervention from the ground station or other control facility. While larger UAS with performance envelopes closer to manned aircraft are likely to adopt separation assurance schemes based on the existing right of way rules, emerging concepts in integration of small UAS envision a simpler set of avoidance maneuvers autonomously executed early enough in the encounter to avoid the creation of a collision avoidance situation. The concept of placing the burden of avoidance on what will likely be the smaller, more maneuverable, more difficult-to-see lightweight unmanned system is in line with emerging policy, and is supported by currently available technologies such as: Universal Access Transceiver (UAT) Beacon Radio (UBR), Global Positioning System (GPS)/Wide Area Augmentation System (WAAS), and low cost, small, light weight computing resources suitable for use aboard small UAS.

Flight demonstrations will show stakeholders how readily available technologies may be integrated to provide lightweight, low-cost, affordable cooperative, autonomous separation assurance in airspace where Automatic Dependent Surveillance-Broadcast (ADS-B) is required.

For more information, contact:
Fran Hoover
Information Management Specialist
+1.703.983.5912