



### NEED FOR DE-ESCALATION SOLUTIONS FOR SAFE CROWD MANAGEMENT

Crowds can form anywhere and anytime with law enforcement agencies being called upon to manage them. Peaceful protests and demonstrations with large crowds have significantly increased over the past few years. How the police initially respond to a protest can set a continuing tone and affect outcomes, making it more important that law enforcement officers use de-escalation tools.

In many cases, law enforcement participants do not have access to effective de-escalation solutions for safe crowd dispersal and control. Existing de-escalation tools were not designed for two-way communication or use in crowd environments and can incur unintended impacts or injury to officers and citizens when misapplied in crowd management operations.

Tools designed for crowd environments will help law enforcement officers de-escalate situations by creating time and/or distance between them and large crowds as they aim to stop unlawful activity without needing to elevate to a level of force. An effective solution will help law enforcement officers address individuals and small groups engaged in criminal activity occurring near lawful demonstrations, and manage lawful orders for area denial, crowd dispersal, and/or crowd moving/channeling operations.

### BELLBIRD: AN AERIAL DE-ESCALATION OPTION FOR CROWD CONTROL

Recognizing the need to develop an effective two-way communication solution that enhances the capability of law enforcement crowd management operations and eliminates the unintended impacts of misapplying existing technologies, the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) is partnering with Cornerstone Research Group, Inc. (CRG) to develop the Bellbird.

The Bellbird is an aerial drone capable of two-way communication and projecting highly intelligible voice commands as far as 100 meters and sound tone projection over 88 decibels (dB) of background noise at a range of 65 meters. Named after the White Bellbird, which has the loudest recorded call for birds (125 dB), the CRG Bellbird will provide DHS with a solution that is lightweight, can be operated

manually or autonomously, allows the user to project voice commands or warning tones, and can be operated at a safe sound pressure level that does not cause hearing loss.

This project takes a rapid development approach that supports CRG's integration of commercial off-the-shelf (COTS) technologies to develop a Proof of Concept:

- **Vertical Take Off and Landing (VTOL) Aerial Drone**
  - Federal Aviation Administration (FAA) Part 107-compliant COTS Unmanned Aerial System with necessary modifications made for payload integration, ruggedization, stability, and flight performance
  - Aerial System's VTOL capability provides law enforcement a rapidly deployable system
- **Long Range Acoustic Device System**
  - Primary de-escalation mechanism
- **Two-Way Communication Microphone**
  - CRG will test for optimal placement of the microphone
- **Can be modified to integrate non-lethal deterrents**
- **Full System Weight** – At 45 pounds, the Bellbird comes in under the 55-pound weight limit for unmanned aerial vehicle systems set by the FAA

### IMPACT OF A DE-ESCALATION CROWD MANAGEMENT SOLUTION

S&T's First Responder Technologies activities lead to first responders having the tools available via the commercial marketplace that assist them in carrying out their missions in an effective and safe manner. Non-lethal technologies or intermediate force capabilities have been demonstrated to be effective solutions for situations and scenarios in which lethal force is not desired.

### PROJECT MILESTONES

- Contract Award and Project Kick Off – 1<sup>st</sup> QTR FY23
- Preliminary Design Review and Weight Demonstration – 2<sup>nd</sup> QTR FY23
- Critical Design Review – 1<sup>st</sup> QTR FY24
- Operational Field Assessment – 4<sup>th</sup> QTR FY24

### PERFORMER/PARTNER

Cornerstone Research Group, Inc., Miamisburg, OH

