

BACKGROUND

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) [National Urban Security Technology Laboratory \(NUSTL\)](#) supports our Nation's first responders with research, development, test and evaluation products and services to address the most pressing challenges confronting the public safety community.

MISSION

NUSTL evaluates tools and technologies and develops data-driven guidance and solutions to ensure first responders and the public safety community are well-equipped to execute their missions safely and effectively.

CAPABILITIES

NUSTL serves the dynamic missions of DHS and first responders by:

- Conducting test and evaluation (T&E)—spanning a broad range of technologies and equipment, spanning from commercial-off-the-shelf products to emerging capabilities
- Executing research and development (R&D)—resulting in tools and actionable guidance to support first responder missions
- Serving as trusted advisors for the first responder community—providing technical expertise and knowledge to inform decision-making



PRODUCTS AND SERVICES

- Providing a full range of T&E services, including:
 - test planning and execution
 - focus group facilitation
 - data collection and analysis
 - technology demonstrations
 - comparative product assessments
 - operational experimentations
- Advising on user requirements capture, equipment standards, technology marketplace, and concept of operations development
- Publication of knowledge products to inform technology acquisition and deployment decisions
- Developing tools and actionable guidance to prepare for and respond to public safety hazards and threats
- Bridging knowledge gaps between technology developers and first responder end users, supporting the development of field-ready products

IMPACT

NUSTL addresses the real-world needs of the national first responder community. By working in close collaboration with responders from all disciplines and levels of government, NUSTL fosters a deep understanding of the operational conditions and challenges they experience. First responders are actively involved throughout every stage of NUSTL's programs and projects, further ensuring their needs are met. From conducting research and testing to inform discipline-wide equipment standards, to developing data-driven emergency response guidance—NUSTL's work has wide ranging impacts for the public safety community.

NUSTL's technology assessments, market research, and subject matter expertise provide public safety agencies with critical knowledge to make informed procurement and deployment decisions, ensuring that limited resources are used wisely. As threats continue to evolve, there is no end to the challenges that first responders face on the front lines of homeland security. NUSTL helps first responders make confident, cost- and life-saving decisions with "field ready" tools, technologies, and guidance.

TECHNOLOGY TEST & EVALUATION

CONSUMER REPORTS FOR FIRST RESPONDERS

Many of NUSTL's T&E activities are performed under the System Assessment and Validation for Emergency Responders (SAVER) program. NUSTL surveys the commercial marketplace for technologies and equipment that meet responder use cases, and works directly with first responders to assess those technologies in realistic operational settings. More than 1,000 technology reports are publicly available on the SAVER website:

www.dhs.gov/science-and-technology/saver. These SAVER reports provide a cost- and life-saving value proposition to DHS, as well as to federal, state, local, and tribal responders when making their technology purchasing decisions.



UAS AND COUNTER-UAS

As an enabling capability that has the potential to save lives, unmanned aircraft systems (UAS) are increasingly deployed by first responders to perform a range of public safety missions. NUSTL is working closely with drone pilots from responder agencies across the nation to assess UAS for a range of public safety applications.

Conversely, UAS pose challenges and threats to homeland security and public safety. NUSTL has tested counter-UAS (C-UAS) across a range of DHS applications and geographical environments, and is a key resource for C-UAS testing in DHS.

As a trusted resource for test and evaluation, NUSTL's work in this area not only informs technology acquisitions, but also keeps other public safety agencies apprised of C-UAS and UAS capabilities.

URBAN OPERATIONAL EXPERIMENTATION (OpEx)

Urban OpEx is marked by a [weeklong series of experiments](#) showcasing technologies of interest to the public safety community. Technologies have included UAS and robotics, incident management platforms, and deployable communications, among others. Through iterative demonstrations and operational exercises, Urban OpEx allows for collaboration between the technology development and public safety communities, enabling real-time problem solving and valuable end-user feedback for technology developers to enhance their products for operational deployment.

RESEARCH AND DEVELOPMENT

NUSTL's R&D efforts are focused on providing state and local first responders with research-based guidance and tools to tackle public safety hazards and threats.

ENERGY INNOVATION AND PUBLIC SAFETY

The fire service is facing unprecedented challenges as they respond to lithium-ion battery fires. Fires stemming from smaller batteries to larger, grid-scale energy storage systems are a growing public safety hazard and threat. As the demand for more advanced energy storage systems grows, there is a need to address the fire hazards associated with them. NUSTL is prioritizing efforts to equip first responders with advanced knowledge and tools to protect themselves and the public—particularly in the face of increasing fatalities and financial losses resulting from lithium-ion battery fires.

RADIOLOGICAL AND NUCLEAR RESPONSE

An effective emergency response to a radiological/nuclear incident could save thousands of lives and protect millions more at risk, but it requires advanced planning, hazard awareness, and preparedness. This R&D portfolio develops tools, modeling, and actionable guidance, such as the

[Planning Guidance for Response to a Nuclear Detonation](#) and [RDD Response Guidance: Planning for the First 100 Minutes](#) to help state and local agencies initiate response and recovery activities in the immediate aftermath.

