

# First Responder Technologies (R-Tech)

Tech Clearinghouse  
TechSolutions

Jeff Hudkins

Science and Technology Directorate  
Department of Homeland Security



**Homeland  
Security**

# R-Tech Mission

To provide First Responders with S&T information and rapid prototype development to enhance emergency response

- **Tech Clearinghouse**

- Improved technical information sharing and knowledge

- **TechSolutions**

- Rapid prototype development, solutions fielded between 12 and 15 months and less than \$1 million

# Tech Clearinghouse

Rapidly disseminates technology information on products and services to Federal, State, local, Tribal government and private sector entities, in order to encourage technological innovation and facilitate the mission of the Department of Homeland Security.

- Establishes Central Federal Technology Clearinghouse
- Issues Announcements for Innovative Solutions
- Establishes S&T Technical Assessment Teams
- Provides guidance for the evaluation, purchase, and implementation of homeland security enhancing technologies
- Provides users with information to develop or deploy technologies that would enhance homeland security
- Enables technology transfer

[www.FirstResponder.gov](http://www.FirstResponder.gov)

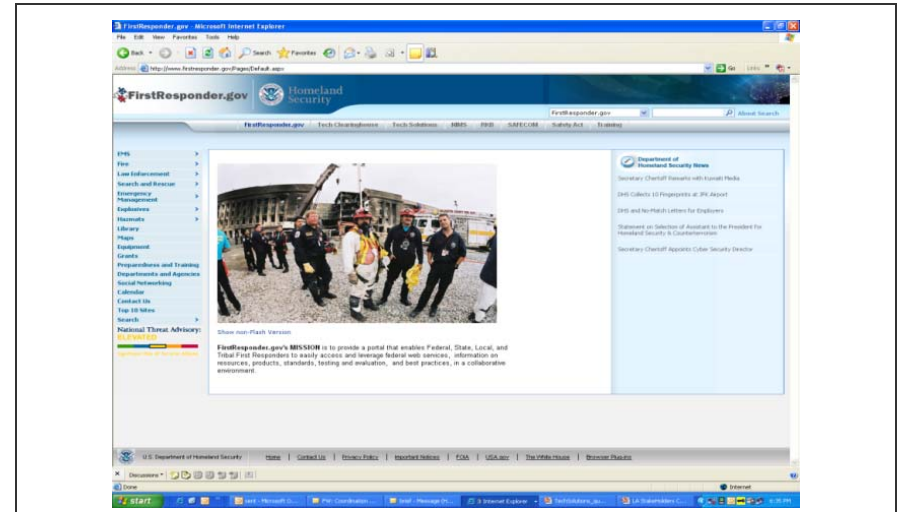
*Umbrella Portal & Technology Communities of Practices*

# FirstResponder.gov



## Product Description:

FirstResponder.gov is a web-based umbrella portal that serves as a one-stop-shop to disseminate technology information to First Responders. The portal facilitates compliance with Section 313 of the Homeland Security Act of 2002.



## Demos/Deliverables/Transitions:

- Launched Certified and Accredited Version 1.0 of [www.firstresponder.gov](http://www.firstresponder.gov) – 1<sup>st</sup> Qtr FY08
- Single sign-on login capability – FY09

## Benefits to First Responder:

- Provides a taxonomy to easily locate First Responder-related Web resource information

## Intended Customers:

- Federal, State, Local and Tribal Nation

Partners: Booz Allen Hamilton



Deliverables/Demos –   
Transitions – 

FY08

FY09

FY10



# TechSolutions

Rapidly addresses high-priority technology gaps identified by Federal, State, Local, and Tribal first responders

- Field prototypical solutions in 12 to 15 months
- Cost should be commensurate with proposal but less than \$1M per project
- Solution should meet 80% of identified requirements
- Emergency Responders relay their capability gaps directly
- Gaps are addressed using existing technology, spiral development, and rapid prototyping
- Emergency Responders partner with DHS from start to finish

[www.dhs.gov/TechSolutions](http://www.dhs.gov/TechSolutions)

# Handheld Biometric System Pilot in the Mona Pass

## Pilot Description

Real-world operational pilot of U.S. Coast Guard (USCG) maritime mobile biometrics technologies in the Mona Pass. The pilot identifies strengths and shortfalls associated with the use of mobile biometrics. This program assessed the feasibility and utility of ship-to-shore communications for the biometric device. The pilot produced a technology development roadmap to guide procurement and acquisitions supporting Coast Guard operations; during the pilot over 300 immigrants on watch or wanted lists were identified.



## Demos/Deliverables/Transitions:

- Pilot system tested in the Mona Pass – FY07/FY08
- USCG to procure units for Florida based cutter and patrol boats – FY09
- Handheld Biometric System becomes USCG program of record – FY10

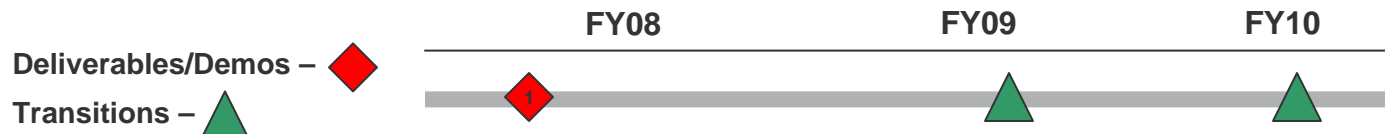
## Benefits to First Responder:

- Timely identification of interdicted immigrants on a watch or wanted list

## Intended Customers:

- USCG with lessons learned for CBP, US-VISIT

Partners: USCG



# Advanced Personal Protection System

## Product Description:

An Advanced Personal Protection System program will create a repeatable product development process to develop improved multi-threat personal protection ensembles for Federal, state, local and tribal law enforcement and first responders. The system will leverage DoD investment in personal protection technology and systems to improve user survivability and operational performance.



## Demos/Deliverables/Transitions:

- Define user requirements – 1QFY09
- Fabricate PPE prototypes – 2-3QFY09
- Conduct technical testing – 3-4QFY09
- Down select prototypes for testing – 4QFY09
- Conduct operational testing – 4QFY09-1QFY10
- Define PPE system – 1<sup>st</sup> Qtr FY10
- Transition – 2<sup>d</sup> Qtr FY10

## Benefits to First Responder:

- Improve levels of protection
- Reduce operational burden imposed by PPE
- Expand PPE effectiveness against multiple threats

## Intended Customers:

- Federal, State, Local and Tribal Nation

Partners: U. S. Coast Guard



FY09

FY10

FY11

Deliverables/Demos – ◆

Transitions – ▲

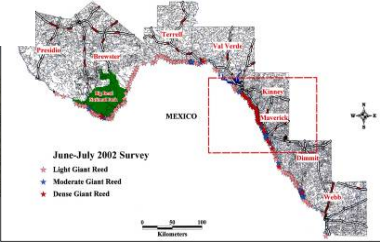


# Arundo Donax (Carrizo Cane) Eradication

## Product Description:

Carrizo Cane is a giant reed that grows along the banks of southwest rivers whose dense foliage encumbers law enforcement activities. Working with the U.S. Dept of Agriculture (USDA), Canada, and Mexico, this program seeks to use harmless natural control agents to eradicate the non-indigenous invasive reed species. Use of pesticides is not environmentally sound.

## Border Patrol Access Road Near Eagle Pass



**Arundo wasp**  
Larva form galls & kill canes



**Arundo fly**  
Larva kill new shoots



**Arundo scale**  
Nymphs feed on rhizomes



## Demos/Deliverables/Transitions:

- Conduct Greenhouse Pilot with USDA – FY08
- Host range testing of selected agent(s) – FY08
- Begin U.S./Canada/Mexico approval process – FY08
- Field implementation – FY09

## Benefits to First Responder:

- Increase agent/officer safety
- Increase monitoring and accessibility to the riverfront border area
- Remove cover used for illegal activity
- Enhance environmental stability

## Intended Customers:

- Customs and Border Protection (CBP)

**Partners:** USDA, Canada, Mexico



Deliverables/Demos –   
Transitions – 

FY08

FY09

FY10





# Next Generation Breathing Apparatus

## Product Description:

An innovative self-contained breathing apparatus (SCBA) that will allow First Responders more mobility and less fatigue while responding to emergencies, as well as increased accessibility to confined spaces. The SCBA will be compatible with current systems.



## Demos/Deliverables/Transitions:

- Fabricate production test units – FY08
- Field operational testing – FY08
- NIOSH and NFPA certification testing – FY09
- Dept of Transportation (DOT) certification – FY09
- Transition – FY09

## Benefits to First Responder:

- Reduction in weight from 30 lbs to 7.8 lbs
- Reduction of profile to 1.625 inches
- Increased flexibility and reduced fatigue
- Rechargeable
- Compatible with existing air supply hoses

## Intended Customers:

- Federal, State, Local and Tribal Nation

Partners: DOT, NIOSH, NFPA

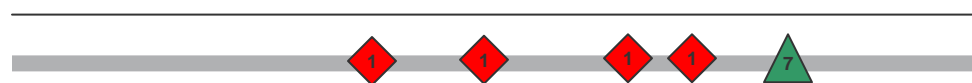


Deliverables/Demos –   
Transitions – 

FY08

FY09

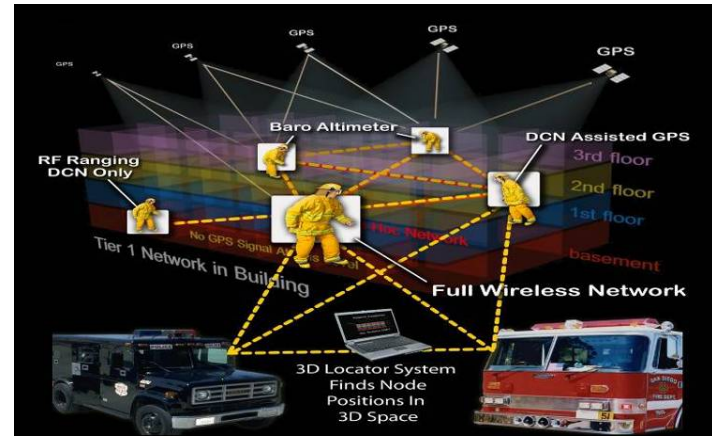
FY10



# 3-D Locator System

## Product Description:

The 3-D Locator develops a system to accurately locate and track incident responders inside buildings and subterranean facilities. System will include components such as locator, alarm, communications, and visualization. The initial target accuracy is 3m.



## Demos/Deliverables/Transitions:

- System prototype – FY08
- Demonstrate target accuracy – FY09
- Spiral development of 1m system – FY09

## Benefits to First Responder:

- Provide incident commanders with accurate location data to facilitate tracking of personnel
- Improve situational awareness to facilitate the rapid and effective deployment of First Responders
- Facilitate rescue of injured/trapped First Responders

## Intended Customers:

- FEMA/USFA, Federal, State, Local and Tribal Nation

## Partners: L-3 Communications

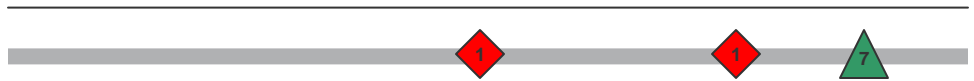


Deliverables/Demos –   
 Transitions – 

FY08

FY09

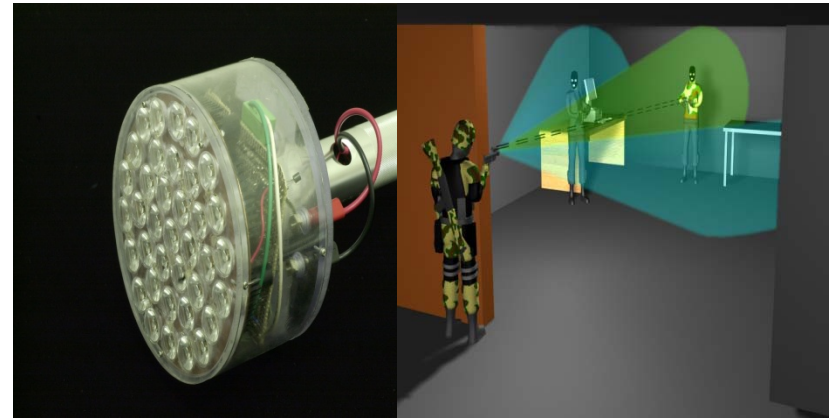
FY10



# Handheld LED-Based Incapacitator: DAZZLER

## Product Description:

The project is developing a hand-held and non-lethal optical law enforcement device that neutralizes and assures compliance of unruly and uncooperative individuals. The device will be lightweight and energy efficient. It will cause temporary, but safe, flash-blindness, psychological discomfort, disorientation, and other effects without threatening the safety of officers or innocent civilians.



## Demos/Deliverables/Transitions:

- Prototype installation and test – FY08
- Prototype demonstration – 4<sup>th</sup> Qtr FY08
- Transitions – FY09

## Benefits to First Responder:

- Improved less-lethal capabilities for law enforcement personnel
- Greater range in terms of application of force
- Increased safety for civilians

## Intended Customers:

- Federal, State, Local and Tribal Nation

Partners: SBIR



Deliverables/Demos –   
Transitions – 

FY08

FY09

FY10

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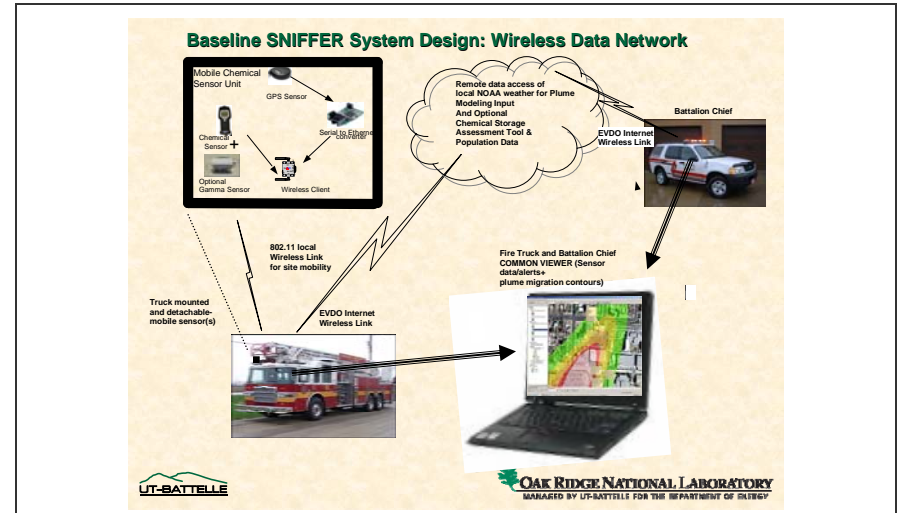
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# Vehicle Mounted Chemical Detector System

## Product Description:

The chemical detector system will provide incident commanders with awareness of a broad range of hazards at incident scenes. The system will employ truck mountable/man-portable sensors for airborne chemical detection. This system will provide remote data and alert displays to a central location via a wireless communications link, and the data will include consequence analysis and plume modeling to facilitate evacuation decisions.



## Demos/Deliverables/Transitions:

- Conduct live chemical testing – FY09
- Field prototype demo with local First Responders – FY09
- Transition – FY10

## Benefits to First Responder:

- Provide fire and emergency responders the data required to make key decisions during fire mitigation, rescue, and hazards control
- Integrated chemical/hybrid sensor system

## Intended Customers:

- Federal, State, Local and Tribal Nation

**Partners:** Special Technologies Laboratory (STL), Oak Ridge



Deliverables/Demos –   
 Transitions – 

FY08

FY09

FY10



# Standoff Patient Triage

## Product Description:

A multimodal, portable, lightweight health assessment system capable of operating in a standoff mode at distances of up to 40 feet for patient triage at incident scenes. A First Responder will aim the unit at the patient to collect the sensor data which is analyzed using medical algorithms and the results are shown on the display. The sensor has three subsystems: a laser Doppler vibrometer, an infrared camera, and a stabilization system.



## Demos/Deliverables/Transitions:

- Demonstrate an engineering prototype – 4<sup>th</sup> Qtr FY08
- Demonstrate a second generation prototype – FY09
- Demonstrate and test a pre-production prototype – FY09
- Transition – FY09–1<sup>st</sup> Qtr FY10

## Benefits to First Responder:

- Provides reliable information on patient health in less than 30 seconds
- Does not require trained medical personnel
- Facilitates diagnosis and treatment

## Intended Customers:

- Federal, State, Local and Tribal Nation

Partners: Navy Systems Command



Deliverables/Demos –   
Transitions – 

FY08

FY09

FY10



# Ocular Scanning Nerve Agents/Toxic Gases

## Product Description:

A handheld device that provides the ability to rapidly, reliably, and non-invasively screen a very large group of individuals for possible exposure to chemical warfare agents, biological toxins, selected toxic industrial chemicals and organic nitrate explosives. The technology will be simple to use, require minimal training, and be inexpensive to manufacture, operate, and maintain.



## Demos/Deliverables/Transitions:

- Deploy system to Alaska to evaluate and test accidental exposure to botulism, toxins – FY08
- Testing on individuals accidentally exposed to organophosphate pesticides, botulism, toxin, carbon monoxide and cyanide – FY08
- Refined algorithms and software for automated detection and identification of ocular biomarkers for exposure to organic nitrate explosives – FY09
- Transition – FY09

## Benefits to First Responder:

- Allows for exposure determination at the scene
- Does not require trained medical personnel
- Facilitates diagnosis and treatment

## Intended Customers:

- Federal, State, Local and Tribal Nation

Partners: State of Alaska



Deliverables/Demos – 

Transitions – 

FY08

FY09

FY10





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