

Topic: N141-041

Texas Research Institute Austin, Inc.

Adaptable Standardized Modular Infrastructure for Optimal Space Utilization

Texas Research Institute Austin, Inc. is developing a composite standardized payload canister to support rapid integration of payloads into the Virginia Class Submarines. Our design incorporates universal connections and fittings that interface between the individual payload tubes within the payload canister and the host ship's electrical, hydraulic, data, flood/drain, and structural connections to facilitate the integration of a variety of payloads. Composite materials offer benefits related to corrosion resistance, reduced weight, acoustic dampening, vibration dampening, and faster manufacturing processes. New materials, architectures, and consolidation processes are expected to meet performance requirements, effect life cycle cost reductions, and maintain required production rates. Once the chief components have been designed, documented, manufactured and tested at the end of the Phase II Base effort, a full-scale canister will be fabricated for evaluation of material, process, and structure capabilities.

Technology Category Alignment:

Corrosion

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**SYSCOM:** NAVSEA

**Contract:** N00178-18-C-8004

**Booth:** 197

**Room:** FST at NAVSEA HQ

 Corporate Brochure: [https://navystp.com/vtm/open\\_file?type=brochure&id=N00178-18-C-8004](https://navystp.com/vtm/open_file?type=brochure&id=N00178-18-C-8004)

# Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2019-0595

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Texas Research Institute Austin, Inc.

## WHO

**SYSCOM:** NAVSEA

**Sponsoring Program:** SUB 073

**Transition Target:** PMS 450 Virginia Class Submarine

**TPOC:**  
(401)832-2473

**Other transition opportunities:**  
Future Sub Office SSN(x)



U.S. Navy Graphic

## WHAT

### Operational Need and Improvement:

Composite standardized payload canister that will support rapid integration of payloads into the forward Virginia Payload Tubes (VPT) or Virginia Payload Module (VPM) tubes. The composite material standardized payload canister shall have universal connections and fittings that will interface between the individual payload tubes within the payload canister and the host ship's electrical, hydraulic, data, flood/drain, and structural connections to facilitate the integration of a variety of payloads.

### Specifications Required:

The use of composite materials will be evaluated to determine if there are benefits related to corrosion resistance, reduced weight, acoustic dampening, vibration dampening, and faster manufacturing.

### Technology Developed:

1. Fabricate one full scale composite payload canister from the accepted drawings.
2. Provide the full scale composite payload canister to demonstrate integration of a simulated payload.
3. Define the processes for installation of the payload canister on a Virginia-class submarine.
4. Submit drawings and testing results to the NAVSEA Technical Warrant Holders.
5. Support Navy testing of full scale payload.

### Warfighter Value:

The reconfigurable canister will facilitate the integration of a variety of new payloads for use on the Virginia submarine, adding payload capacity, which is critical to the future undersea warfare missions envisioned for the US submarine fleet.

## WHEN

**Contract Number:** N00178-18-C-8004 **Ending on:** June 11, 2020

Milestone	Risk Level	Measure of Success	Ending TRL	Date
MAC Teaming Partners	Low	2	2	TBD
Materials and process selection	Med	4	4	August 2019
Manufacture Prototype	Med	5	5	December 2019
Model testing of prototype	Med	5	6	June 2020
Shock Testing	High	6	7	December 2020

## HOW

### Projected Business Model:

The proposed business strategy for transitioning from Phase II through final development and into acquisition is to involve teaming partners General Dynamics Electric Boat, Newport News Shipbuilding, and Northrop Grumman Electronic Systems – Marine Systems with the integration of the composite payload canister into the Virginia Payload Module (VPM) designs as a cost savings initiative on future Block Virginia-class Submarines. The customer in the Department of the Navy (DoN) for this technology is the Virginia Class Program Office (PMS 450).

### Company Objectives:

The goal will be to promote the technology to to both PMS 450 and other program offices along with the primes working in this technical area. We will look to leverage the relationships with teaming partners to promote the advancement of this technology within the Navy as well as the primes.

### Potential Commercial Applications:

Very limited excluding use of the composite material for other commercial applications.

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