



# *Enabling Force Projection with Effective Support Equipment and Systems*



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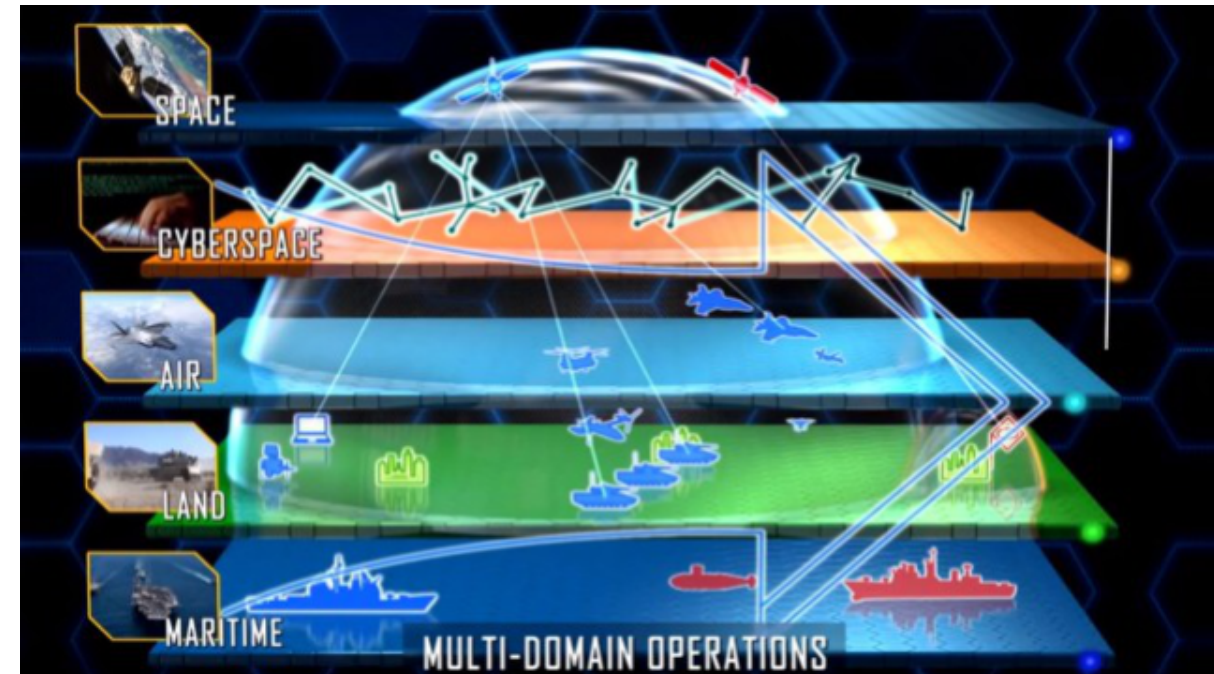


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# Agenda

- *Modernizing Combat Support & Combat Service Support (CS&CSS) Capabilities*
  - *Robotic and Autonomous Systems Modernization*
  - *Fuel and Water Systems Modernization*
  - *Bridging Systems Modernization*
  - *Bridge Military Load Classification (MLC) Initiatives*
- *Integrating CS&CSS with the Wider Force*
- *Current Gaps in Capabilities*





# Modernizing CS&CSS Capabilities

Develop and deliver modernized combat support capabilities to the Joint Force, enabling multi-domain operations in contested environments.

Joint Light Tactical Vehicle



Joint Light Tactical Vehicle

Light Tactical Vehicle



Ground Mobility Vehicle



Transportation Systems



Common Tactical Truck

Heavy Tactical Vehicles



Multi-mission Protected Vehicle Systems



Watercraft Systems



Expeditionary Energy & Sustainment Systems



Tactical Power Systems

Force Sustainment Systems

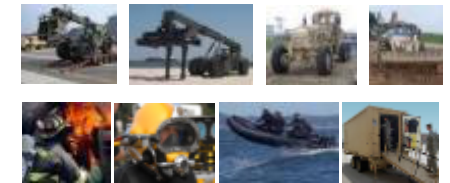


## Force Projection

### Bridging Systems



Engineer, Maintenance & Support Equipment



Petroleum & Water Systems



Robotic and Autonomous Systems



Test, Measurement, & Diagnostic Equipment





## Autonomous Transport Vehicle System (ATV-S) – Initiated Competitive Rapid Prototyping – Target Fielding FY26

- A suite of robotic applique sensors, controllers, and autonomy software that provides manned and unmanned teaming capability for convoy operations.
- Provides increased force protection and increased logistics throughput for convoy missions. ATV-S equipped Palletized Load System (PLS) Tactical Wheeled Vehicles (TWVs) will allow a single Soldier to lead a convoy of four wirelessly-linked, unmanned PLS TWVs, reducing Soldier exposure to hostile threats while increasing transportation throughput.

## Small Multipurpose Equipment Transport Increment I, (S-MET Inc I) – Fielding ongoing into FY25

- Robotic platform that provides a capability to reduce the physical burdens to carry payload in anticipated terrains and environments while simultaneously providing power generation needed for extended mission durations.
- Provides small units with a remote-controlled cargo/equipment transport and limited tactical resupply capability, reducing the Soldiers individually carried load.



## S-MET Inc II – Initiated Solicitation for Prototypes

- Provides enhanced capability over S-MET Inc I requirements for kinetic, cyber, and electromagnetic survivability, and new requirements for open payload architecture, Modular Mission Payloads, and increased reliability.

# Fuel and Water Systems Modernization



## Mobile Tactical Retail Refueling System (MTRRS)

- Provides retail petroleum to Soldiers and remote units in tactical environments and presents a means to extend sustainment of future assets throughout the global operational environment, while minimizing the need to establish or defend a sustainment footprint within the operational area.
- Capacity of 978-gallons / 3,702 liters

## Bulk Fuel Distribution System (BFDS)

- A commercially available petroleum semi-trailer modified to incorporate capabilities required for military use.
- Carries a minimum of 7,500 gallons of petroleum across improved and limited unimproved roads at normal convoy operating speeds.
- Provides accurate measurement and digital display of petroleum within the system.



## Early Entry Fuel Distribution System (E2FDS)

- Early entry bulk fuel and raw water distribution capability, with a throughput up to 850,000 gallons of petroleum or 650,000 gallons of non-potable water per day.
- Comprised of five mile sets capable of being configured up to a 50-mile trace. These system sets include Automated Pump Stations, Employment & Retrieval System (ERS), five miles of flexible hose with hose support equipment, Command and Control Module (C2M), and automated Trace Planning Tool.



## HEMTT-LHS Compatible Water Tank Rack (HIPPO)

- 2,000-gallon potable water tank in a 20' ISO frame with integrated pump, engine, alternator, hose reel, heater and fill stand.
- Provides the Army with the capability to receive, store, and distribute potable water utilizing the HEMTT-LHS, PLS, and PLS trailer.
- Replaces the Forward Area Water Point Supply System (FAWPSS) & the Semi-Trailer Mounted Fabric Tank.



## Water Storage Distribution System (WSDS)

- The Army's primary large potable water bag farm storage, increasing storage capacity to 100,000 gallons.
- Capable of supporting split operations and multiple configurations.
- Comprised of collapsible storage tanks, engine-driven centrifugal water pumps, meters, hoses, fittings and nozzles, and hypo-chlorination units that automatically chlorinate water to Army standards.
- Capacity: 100,000-gallon storage. 125 Gallon Per Minute Pump, 350 Gallon Per Minute Pump, Hoses, End Connectors.



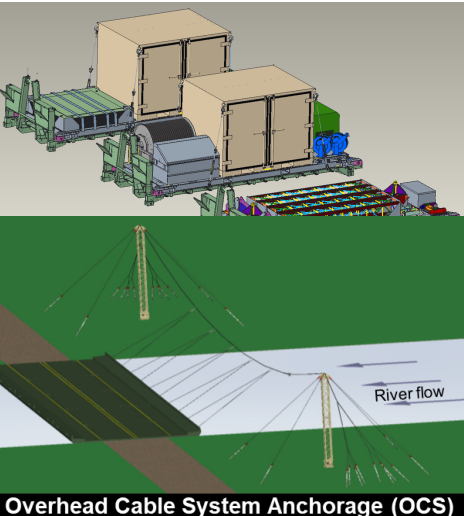
## Common Bridge Transporter (CBT)

- A modified Heavy Expanded Mobility Tactical Truck (HEMMT) with enhanced survivability that transports, launches, and retrieves all float and dry span bridging equipment.
- Prime mover for the Bridge Erection Boat (BEB), Improved Ribbon Bridge (IRB), Line of Communication Bridge (LOCB), and Rapidly Emplaced Bridge System (REBS).



## Bridge Erection Boat (BEB)

- 24ft aluminum hull powered by twin Cummins Engines and ZF Transmissions with two NAMJet propulsion units.
- Provides propulsion, thrust, and stabilization for the Improved Ribbon Bridge (IRB) bays for “full closure” bridging and rafting operations.
- Supports short-term anchorage, diving support missions, troop transport, and personnel and equipment recovery.



## Bridge Supplemental Set (BSS)

- Modernizes the Engineer Supplemental Set that has been in the Army inventory since the 1960s and includes a float bridge anchorage capability, site stability, and power unit/ tool kit.
- Provides unrestricted functionality while facilitating reduced labor-intensive tasks pertaining to bridge construction.
- Reduces the need for extended use of the Bridge Erection Boats and exposing Soldiers to threats.

Overhead Cable System Anchorage (OCS)

# Assault Breacher Vehicle (ABV)

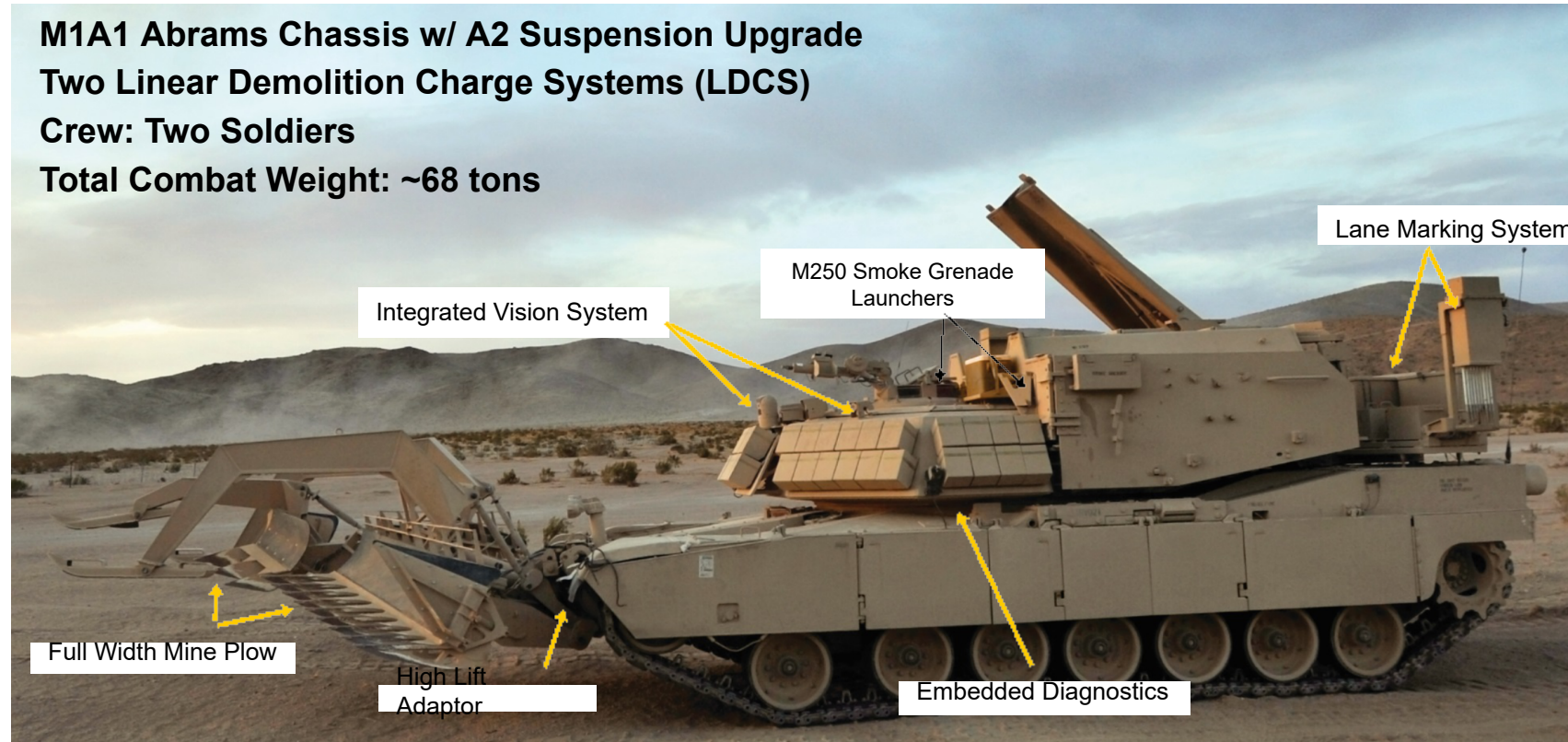
## Standard Configuration

**M1A1 Abrams Chassis w/ A2 Suspension Upgrade**

**Two Linear Demolition Charge Systems (LDCS)**

**Crew: Two Soldiers**

**Total Combat Weight: ~68 tons**



The Assault Breacher Vehicle (ABV) is a fully-tracked, armor combat engineer vehicle designed to breach minefields and complex obstacles, providing an in-stride breaching capability. It provides crew protection and vehicle survivability while having the speed and mobility to keep pace with the maneuver force. US Army front end equipment consists of the Full Width Mine Plow and Combat Dozer Blade.

We are currently exploring remote-control capabilities for the ABV. We can integrate other attachments, such as an Excavator Arm, Magnetic Signature Duplicator, and Mine Rollers, for International partners.

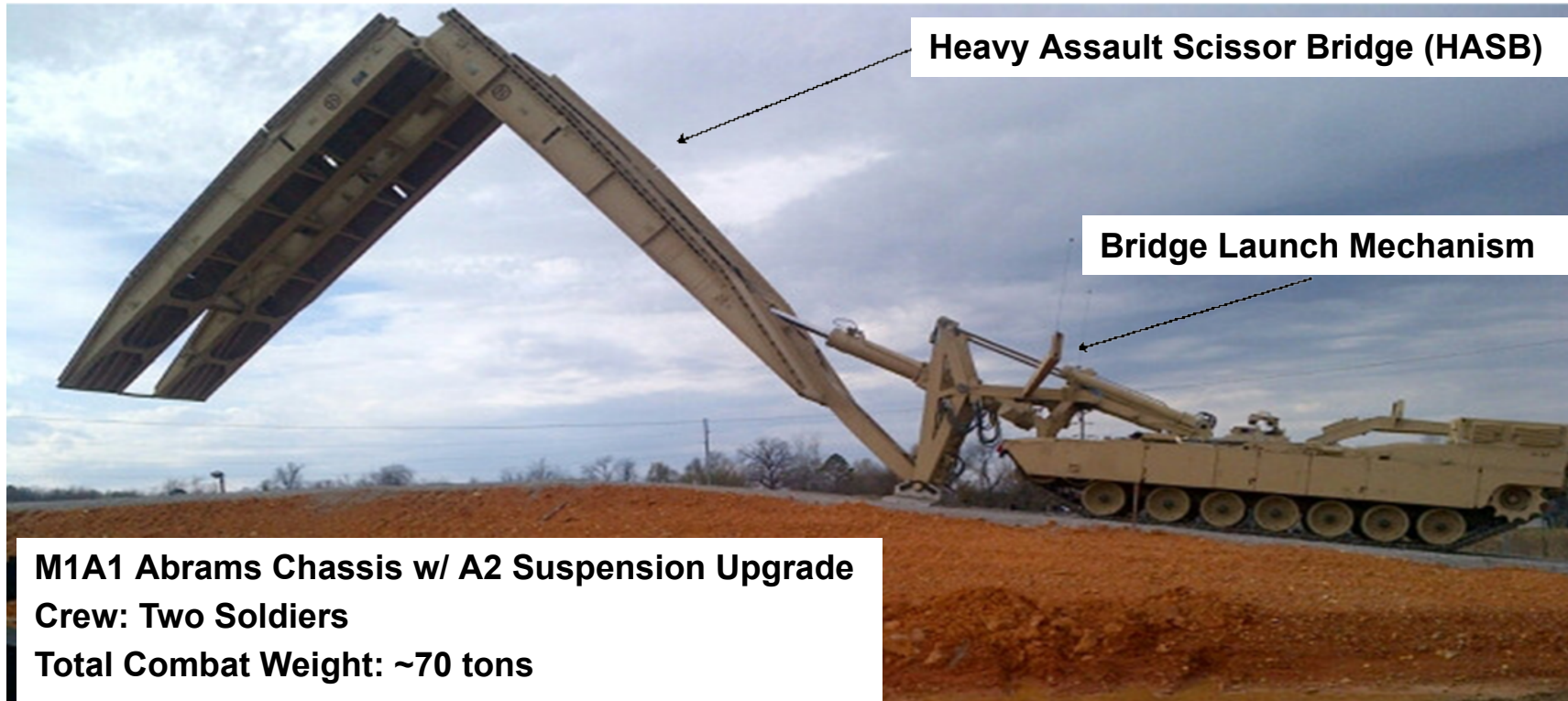


# Assault Breacher Vehicle (ABV) Video



# Joint Assault Bridge (JAB)

## Standard Configuration



The M1110 Joint Assault Bridge (JAB) is a fully-tracked, armor combat engineer vehicle specifically designed to provide assault bridging capabilities to armored forces. It provides crew protection and vehicle survivability while having the speed and mobility to keep pace with the maneuver force. The JAB's hydraulic bridge launch mechanism (BLM) launches and retrieves the Heavy Assault Scissor Bridge, spanning gaps up to 18 meters and supporting up to Military Load Classification (MLC) 115 Tons (124 Tons with caution).

We are currently adding an armor solution to protect the BLM. We can also integrate different communications packages and other items for International partners.

# Joint Assault Bridge (JAB) Video



# Bridge Military Load Classification Initiatives

- Family of Higher Military Load Classification (MLC)
  - Opportunities to uprate the existing MLC of these bridges or identify areas for modernization
  - Focus on Dry Support Bridge (DSB), Heavy Assault Scissor Bridge (HASB), and Improved Ribbon Bridge (IRB)



- Testing conducted by the US Army Engineer Research and Development Center (ERDC) in Vicksburg, Mississippi, and the US Army Bridge Technology Lab, located at Selfridge Air National Guard Base, Michigan

- Bridge Technology Lab

- Official load testing to determine MLC ratings and minimum safe reserve capacity of bridges
- Only US lab certified to conduct testing in accordance with the Trilateral Design and Test Code for Military Bridging and Gap-Crossing Equipment and NATO Standardization Agreement, STANAG 2021
- Loads up to one million pounds

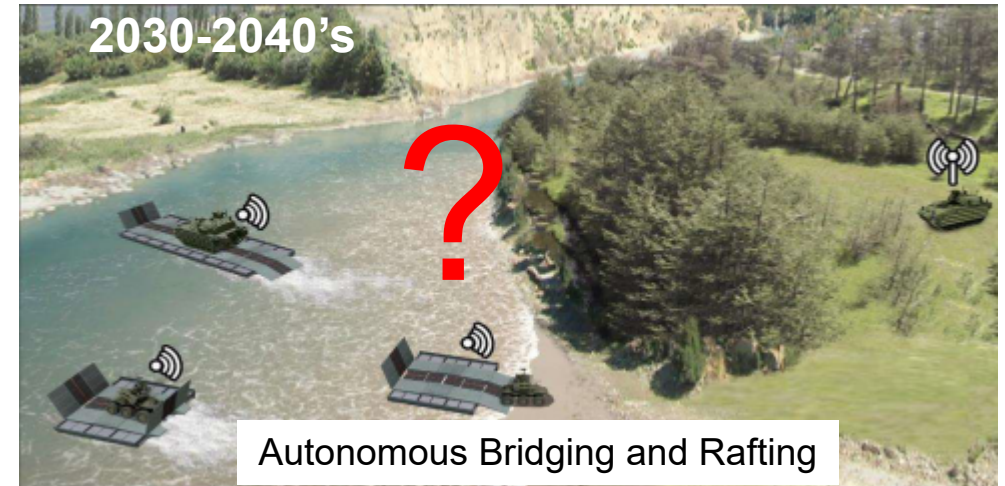


# Integrating CS&CSS with the Wider Force

- Understanding the interdependencies and interoperability with the wider force
  - Other modernization efforts: Ground Obstacle Breaching Lane Neutralizer (GOBLN), M10 Booker, Common Tactical Truck (CTT), M1E3 tank
  - Soldier Touchpoints and feedback
  - Joint Forces (Working Groups, Exercises)
  - Allies and Partner Nations (International Cooperation, Foreign Military Sales, Exercises)
- Requires combined arms training with a formation-based approach



# Current Gaps in Capabilities



- **Programs:**

- Medium Assault Bridge (MAB)
- Heavy Tactical Bridge (HTB)
- Next Generation Mechanical Breacher (NGMB)
- Autonomous Bridging and Rafting
- Bridging capabilities for robots and light infantry formations
- Tactical Fuel Distribution Systems (TFDS)
- Bison Unit Water Trailer
- 3K Tactical Water Purification System (TWPS)

- **Technologies:**

- Determine bridge health and remaining crossings available
- Increased survivability to protect personnel in gap crossing and breaching vehicles
- Freeze protection for fuel and water systems in an arctic environment
- Ability to measure and track fuel and water usage

# Key Takeaways

- Combat engineer and logistics systems are must-have enablers for freedom of maneuver, especially in contested environments.
- Wet Gap crossing requires flexibility to provide both high-capacity and dispersed options. Assault bridging will continue to be a critical combat enabler.
- Breaching is one of the most dangerous ground operations and requires innovative approaches.
- Ground robotics and autonomy will play a critical role in future warfare. Autonomy in combat engineer and logistics operations and convoys can increase throughput while minimizing soldier exposure.
- CS&CSS capabilities require thoughtful integration into formations to maximize modernization.





**Thank you!**