Hypervelocity Improved Capability Assault Rifle (HICAR)

PROBLEM STATEMENT

USSOCOM is seeking a carbine system to act as a replacement or upgrade for the current URG-I (Upper Receiver Group - Improved). The goal is to integrate advancements in material science and weapon design to provide operators with a technically superior individual weapon system capable of firing both legacy 5.56x45mm NATO and emerging hyper velocity ammunition.

The current URG-I is an M4-based platform optimized for standard 5.56NATO ammunition, with a recognized effective range of approximately 300 meters. Special Operations Forces (SOF) require the ability to provide effective fire on targets with their primary 5.56mm carbine out to 600 meters and beyond. This weapon system will allow an operator to effectively engage targets at extended distances while maintaining the portability and ergonomics of a lightweight carbine.

The Hypervelocity Improved Carbine (HICAR) program will develop an improved carbine capable of operating with currently issued 5.56NATO ammunition, while also incorporating design features that ensure reliability, durability, and longevity with the use of future hypervelocity 5.56x45mm ammunition. The ability to leverage the performance benefits of current and future experimental hypervelocity rounds is vital to addressing future capability gaps on the battlefield.

Weapon submissions that address the following technology priorities will benefit during the selection process:

- Hypervelocity Ammunition Compatibility: The ability to accept and reliably cycle both 5.56NATO and hyper velocity 5.56x45mm ammunition is a primary objective. The development of a complete weapon system or conversion kit optimized for hypervelocity ammunition will be a collaborative effort between the government and the proposer. Hypervelocity rounds offer significant performance benefits, including:
    - Increased Effective Range: Higher muzzle velocity allows the projectile to maintain kinetic energy over longer distances, extending the effective range to 600m+.
    - Improved Terminal Performance: Enhanced energy transfer upon impact leads to more effective terminal ballistics.
    - Enhanced Barrier Penetration: The increased velocity and kinetic energy enable the projectile to more effectively defeat body armor, barriers, and other hardened surfaces.
- Longevity and Durability: The system must be engineered to withstand the increased chamber pressures and bolt thrust generated by hypervelocity ammunition without compromising the weapon's service life or operator safety.
- Interoperability: The system must remain fully interoperable with USSOCOM's existing suite of Visual Augmentation Systems and Weapon Accessories (VASWA).

PROPOSED SOLUTION

A successful solution will be contingent on the completion of the Proposer's Shoot, Limited Safety, User Evaluation, Product Verification Testing (PVT), and Operational Testing (OT). Some of the technical attributes are listed below. A solution brief's Technical Merit and Relevance will be based on the ability to meet the primary attributes and the cumulative evaluation of the secondary solution attributes/capabilities:

Primary Attributes:

- HICAR shall be chambered in 5.56x45mm NATO. (T=O)
- HICAR shall be compatible and capable of fit and functioning with the M4A1 lower receiver group without permanent modifications (T); with zero modifications (O)
- HICAR shall fire and function with M855A1, Mk262 as well as Government supplied M855A1+ hypervelocity ammunition loaded to 82kpsi (T); with future hypervelocity ammunition designs optimized for projectile velocity and terminal effects on target (O).
- HICAR barrel shall be between 11- 12 inches in length, measured from bare muzzle to bolt face (T=O).
- HICAR shall not fire when on safe and dropped in accordance with TOP 3-2-045 (T=O).
- HICAR shall employ the HUXWRX Flow 556k L In "Black Magic" suppressor (SKU: M3228) to reduce signature (T=O).[1] *(this suppressor will serve as a surrogate for HICAR testing, an optimized suppressor requirement will follow in the future)*

[1] Huxwerx 556K-LIn "Black Magic." Reference: https://huxwrx.com/professional-556-suppressors/

Secondary Attributes:

- Average Mean Radius of 1 MOA (T); 0.5 MOA (O) when fired unsuppressed.[2]
  - Measured by averaging total of three (3) groups of ten (10) shots each fired by three (3) separate weapons in unsuppressed, manned, supported configuration at 100 meters with Black Hills Mk262 Mod1-C 77gr, PN# MP460556N9-COMM ammunition.
  - No single ten round group larger than 2.5MOA extreme spread (T=O)
- Barrel muzzle threaded to 1/2x28 or 5/8x24 threads per inch (T=O).
- Weight not to exceed, unloaded and without suppressor, of 8lbs (T); 6.5lbs (O).
- Length not to exceed, when measured from the end of the receiver extension to the end of muzzle device, of 31 (T); 28 (O) inches.
- Continuously timed and biased M1913 picatinny rail at 12 o'clock minimum of 16 inches in length. (T=O)
- Interoperability with all current SOCOM POR Visual Augmentation Systems (VAS) accessories and enablers (T=O).
- Recoil shock impulse less than the POR Mk17 7.62NATO to ensure VAS survivability (T=O)
- HICAR ergonomics similar to M4A1 (T=O).
- HICAR MRBS of 800 (T); 1,600 (O) rounds between stoppages.
- HICAR MRBF of 5,000 (T); 10,000 (O) rounds between failures
- Cycle and function with M855A1 and Mk262 ammunition (T) cycle and function with current training ammunition to include ball, frangible, and tracer cartridges (O).
- Barrel life 8,000 (T); 20,000 (O) rounds.
  - Measured with M855A1+ ammunition fired as a function of Muzzle Velocity loss of 5% below mean or dispersion above an established threshold, whichever occurs first (T=O).

[2] M855A1 projectile has specified 2.0 MOA average Extreme Spread (0.75 Inches AMR); Ballistic Coefficient of 0.151 (G7); 0.291 (G1) with BC Variation 0.59%; 5.56 NATO SAAMI SPEC (61KSI) average 2970 +/- 30 FPS (ES); 17 (SD).
Citation: https://share.google/17uggPRLPGmjs5zVC; https://share.google/zgxLLvBZqrOVGiXk5; https://share.google/3VI5IMXdTbJb9VdoX; https://share.google/vZhOPpfqAFmKp3588.

- Trigger pull weight less than 5lbs (T), 3lbs (O)
- Selection of fire: Safe, Semi-auto (T) fully Automatic (O).
- Cycle and function with Gen3 PMAG Magazines (T=O)[3].
- Handguard should minimize deflection and POI shift when under load from a bipod or supported on a barricade (O).
- Handguard with M-LOK mounting points at 7 positions radially for mounting accessories and enablers (T=O).
- Modular ambidextrous safety lever (O). ("Modular" defined as ability to have a selector lever on left, right or both sides simultaneously)
- Ambidextrous bolt catch/bolt release, ambidextrous magazine release, and ambidextrous charging handle (O).
- Fencing around the controls to prevent accidental engagement of the magazine release and bolt release mechanisms (T=O).
- Single rigid sling point at the rear of the receiver for maritime operations (O)[4].
- Resistant to damage from immersion in three (3) feet of seawater for two (2) hours without affecting the weapon's performance and able to fire within thirty (30) (O); ten (10) (T) seconds after submersion.
- Protected with durable corrosion resistant coating in all SOF climatic environments including NBC contaminated environments. Corrosion and abrasion proof coatings to minimize the attraction of dust and contaminants (T=O).
- Utilize where possible self-lubricating coatings and minimize buildup of dust, carbon, copper, and debris (O).
- Fully functional in all environments from -40 to 165 degrees Fahrenheit (O).
- Comply with relevant direct-fire MIL-STD specifications as directed by NSWC-Crane SOCOM Weapons Team (O).
- Industry Partner submit to and successfully perform all tests required by NSWC-Crane SOCOM Weapons Team to achieve limited safety release (LSR) from the Navy Weapon Safety Evaluation & Review Board (WSESRB) (O).

[3] PMAG 30 AR/ M4 GEN M3. https://magpul.com/pmag-30-ar-m4-gen-m3.html?mp_global_color=118.
[4] Quick Disconnect (QD) sling point mounts are not acceptable.

- Inscribed at position of Government-choosing with Industry Partner, OASW (SO/LIC) & SSO CD&I TOS Team Lethality logos.

- Contain markings to include caliber, year of manufacture, and manufacturer identification.

- Not rely on any first-order-supply-chain components from adversary countries as defined in the National Defense Authorization Act (NDAA) (O). Any such reliance must be fully documented and mitigated in the Contract Risk Register by Industry Partner (T).

- If not already in BASE, Industry to provide industrialization plan to produce HICAR in the United States by the completion of the contract (T). Designed, engineered, and assembled in the United States (O).

A complete HICAR system to consist of the following:

- Weapon System, Urban
  - Heat Mitigation Rail Covers
  - Buttstock, Multi-Point Adjustable
  - 7x Magpul Gen3 556 Magazines
  - Field Maintenance Kit, Fix-It Sticks
  - Field Cleaning Kit
  - User Manual and Maintenance Manual, hard copy and digital.

SUBMISSION GUIDANCE

<u>PHASE I- White Papers</u>

Include information on the estimated cost per weapon, an estimated timeline to deliver the prototypes, and any risk proposers foresee with the development of the weapon (to include concerns with the above technical aspects). White papers should include information on how the vendor's proposal is specifically optimized to function with current hypervelocity ammunition as well as engineered to accommodate future ammunition in excess of 82kpsi. All whitepapers must contain images of the proposed weapon. A minimum TRL of 6 is required.

All white papers will be retained by the Government for a period of 24 months, and proposers may be contacted by the Government to gauge interest within that time to continue with the proposer's solution. Proposers are not guaranteed to be contacted if not chosen after down selection nor are they beholden to perform if they no longer wish to carry forward with their original proposal.

All other procedures will follow the originally posted CSO N0016425SC0001.

Phase II – Pitch Day

If selected to move forward from the white paper evaluation, then proposers will be asked to participate in a pitch day. The pitch day will consist of an in-person meeting between the proposers, and the GOV. Proposers will provide a weapon demonstration of their weapon during pitch day. Ammunition will be provided. Primary ammunition will be M855A1+ and secondary will be M855A1. Estimated round count for the demonstration will be 600 rounds.

Presentation will happen immediately after the proposer's demonstration. Pitch duration will not exceed 30 minutes to include questions and answers.

During Phase II leading into Pitch Day, the proposer will be 1) authorized to purchase M855A1+ from a specified vendor using internal R&D funds, business to business and 2) requested to provide up to three (3) prototype at vendor expense to the government lab at NSWC-Crane, Indiana for controlled data collection using M855A1+ cartridges.

Pitch Day Location:
US Army Marksmanship Unit Parks Range.
Fort Moore, GA 31905

Whitepapers due 08 May 2026.
Vendors notified for Pitch meeting 29 June 2026.
Pitch Meeting 15-16 September 2026.

Phase III – Request for Prototype Proposal (RPP)
RPP process will remain in alignment with the original CSO N0016425SC0001.

An individual proposer's or team of proposer's should not submit multiple solution briefs to the AOI, unless each individual solution is substantively unique. If submitted as a team, the first page of the solution brief should list each company on the team and a primary point of contact for each company on the team as well as the lead proposer's and point of contact for the overall team.

NOTE: In accordance with NSWC, Crane CSO N0016425SC0001: The government reserves the right and ability to facilitate introductions of proposers with complementary capabilities. If teaming introductions by the government are provided, a proposer is not obligated to act on the recommendation. If a proposer selects to move forward in accordance with a government recommended teaming arrangement, a Phase II pitch deck will be requested by NSWC, Crane in order to facilitate a complete evaluation of the jointly proposed solution.

FOLLOW-ON PRODUCTION

Companies are advised that any prototype Other Transactions (OT) agreement awarded in

response to this Area of Interest may result in the award of a follow-on production contract or transaction without the use of further competitive procedures. The follow-on production contract or transaction will be available for use by one or more organizations in the Department of War and, as a result, the magnitude of the follow-on production contract or transaction could be significantly larger than that of the prototype OT. As such, any prototype OT will include the following statement relative to the potential for follow-on production: "In accordance with 10 U.S.C. 4022(f), and upon a determination that the prototype project for this transaction has been successfully completed, this competitively awarded prototype OT may result in the award of a follow-on production contract or transaction without the use of competitive procedures."

ELIGIBILITY REQUIREMENTS

This solicitation will be awarded in accordance with the Commercial Solutions Opening (CSO) process detailed within N0016425SC0001 Naval Surface Warfare Center, Crane's Commercial Solutions Opening posted to SAM.gov. In accordance with 10 U.S.C. 4022(d), at least one of the following conditions must be satisfied to enter into a prototype OT agreement: (A) at least one nontraditional defense contractor or nonprofit research institution participating to a significant extent, (B) all significant participants are small businesses or nontraditional defense contractors, or (C) at least one third of the total cost of the prototype project is to be paid out of funds provided by sources other than the Federal Government.

White papers must be submitted electronically in PDF format to POC's listed below via email by June 08, 2026, 2:00 PM EST.

Questions or clarifications may be directed to NSWC, Crane POC for Q&C at email by Q&A Deadline, June 02, 2026.

Late submissions will not be considered.

Additional Notes:

Contractors from the following companies will be advising the assessment team:

Frontier Technology Inc. Defense (FTI Defense)
4141 Colonel Glenn Hwy, STE 140
Beavercreek, OH, 45431

IQ SIG
7735 Georgetown Road, STE 1218
Bethesda, MD 20814

Confidentiality

All information provided in this AOI and subsequent proposals will be treated in confidentiality and used solely for the purpose of this evaluation. Proposer's are expected to maintain confidentiality regarding proprietary information shared during the process.