



## **S<sup>2</sup>MARTS Project 21-04: Terminal Seeker for Hypersonic Weapon Systems**

### ***Request For Solutions (RFS) Questions & Answers | Posted February 5, 2021***

1. **Question:** Is this solicitation only interested in receiving responses for EO/IR seekers? Or would they consider RF seekers as well?

**Response:** EO/IR seekers are the desired solutions to this solicitation.

2. **Question:** Will the opportunity allow for submission of a classified proposal?

**Response:** We are only accepting unclassified proposals.

3. **Question:** What is the planned budget and expected schedule? Will this be funded incrementally through phases and demonstration milestones?

**Response:** This is highlighted in Sections 6 & 7 of the RFS. Yes, this will be funded incrementally through phases and demonstration milestones.

4. **Question:** Will test vehicles and test range for developmental and full-scale flight testing be **GFE?**

**Response:** Yes, the government will manage the flight test, provide the platform, and range.

5. **Question:** Are you anticipating or expecting ground-based thermal / mechanical testing of the EO/IR seeker and window to be performed as part of this effort. If so, would this be GFE or should team include this in their proposed effort?

**Response:** Propose what is needed for ground-based testing. The government can help schedule facilities, but the proposer should demonstrate an understanding in the proposal for necessary testing.

6. **Question:** Is there a candidate test vehicle planned for this effort and will SWaP, thermal conditions and interface requirements be provided as part of the RFP or during the contract?

**Response:** Proposer may identify a relevant flight test vehicle prior to the developmental test (sounding rocket). The developmental test and final flight test specifications will be provided upon agreement award.

7. **Question:** Will a candidate target with signature characteristics be made available for the RFP or during the contract?

**Response:** Further information will be provided upon award.

8. **Question:** Does the terminal seeker solution need to be completely contained on the hypersonic vehicle or can we propose a hybrid system with an on-board EO/IR seeker solution that leverages off-board assets to increase accuracy?

**Response:** The ideal solution is contained within the vehicle, but a system that leverages off-board assets would be considered.

9. **Question:** Who is the Navy PM for this S2MARTS Seeker program and is s/he at Crane?

**Response:** Program-specific information will be shared upon contract award.

10. **Question:** Will there be a classified addendum to this solicitation? Much of the work on seeker development in the DoD is judged to be collateral SECRET or above.

**Response:** Yes, classified handling of the effort may be assumed and outlined in the proposal. A secret clearance is required at the time of award.

11. **Question:** Have you already engaged in a solution path and requirements discussions with another company?

**Response:** No, various solution paths are under consideration. Propose a relevant solution and its threshold and objective requirements for performance.

12. **Question:** Without system and sensor requirements, providing firm pricing over a 6-year period is not accurate. Will you accept ROM pricing?

**Response:** Individual proposers can make their own determination on submitting ROM proposals, but award decisions will be made with what is submitted by close of RFS.

13. **Question:** Will you accept proposals that are a Cost-Plus Fixed Fee type program?

**Response:** The RFS is seeking Fixed Price proposals. Proposers may state why a cost-plus approach may be more beneficial and explain why, but the current request is for Fixed Price.

14. **Question:** Can you provide a schedule or dates required for the Deliverables defined in Section 6?

**Response:** The proposer shall provide a realistic schedule for the milestones that fits within the period of performance. Flight test information will be shared upon agreement award.

15. **Question:** Will the government provide GFE the hypersonic wind tunnel or arc jet test facilities for Milestone 9?

**Response:** Identify specific tests necessary to validate and characterize the seeker technology. Government will assist in selecting proper facilities. Proposers shall account for ground test costs in their proposal.

16. **Question:** Does milestone 10 specify 3 different tests to be performed (shock, arc and wind tunnel) or 1 of the 3 tests?

**Response:** Identify specific tests necessary to validate and characterize the seeker technology. Government will assist in selecting proper facilities. Proposers shall account for ground test costs in their proposal.

17. **Question:** Will the government provide GFE the shock tube, arc jet and hypersonic wind tunnel facilities for Milestone 10?

**Response:** Identify specific tests necessary to validate and characterize the seeker technology. Government will assist in selecting proper facilities. Proposers shall account for ground test costs in their proposal.

18. **Question:** Will the government provide GFE the flight vehicle, flight test coordination, flight test assets and flight test instrumentation for Milestone 11?

**Response:** These specific flight test considerations may be considered GFE.

19. **Question:** Will the government provide GFE the sounding rocket, test coordination, test range and test instrumentation for Milestone 12?

**Response:** These specific flight test considerations may be considered GFE.

20. **Question:** Will the government provide GFE the flight vehicle, test coordination, test range and test instrumentation for Milestone 13?

**Response:** These specific flight test considerations may be considered GFE.

21. **Question:** How will the incremental funding noted in Section 7 be awarded? Will there be phases, gates or performance metrics to go to the next level of incremental funding?

**Response:** Funding increments come from the project sponsor each FY and are obligated as they are received. Each deliverable is a potential gate or off-ramp and funding will be dispersed to the performer as they complete deliverables. In addition, Technology Readiness Assessments will be performed with these deliverables and will be used to inform PM for funding decisions.

22. **Question:** What is the mission: ground attack, missile defense, air-to-air, other?

**Response:** The focus of this solicitation is ground targets.

23. **Question:** What are the target classes of interest: fixed ground, maritime, relocatable (TEL, IADS components, etc), moving, other?

**Response:** The focus of this solicitation is ground targets. Further target information will be discussed after agreement award.

24. **Question:** What is the clutter environment?

**Response:** Proposer shall perform adequate literature reviews and identify relevant clutter environments. Publicly available hypersonic vehicle data may be utilized for setting up the framework for the proposal.

25. **Question:** Should the terminal seeker also perform a navigation function?

**Response:** The solution shall “provide a GPS-independent, hypersonic-capable terminal seeker”. A solution that also provides navigation prior to the terminal phase would be considered.

26. **Question:** What is the assumed threat laydown?

**Response:** Threat laydown information will be provided upon agreement award.

27. **Question:** Could you provide information on what the operating regime is for this Terminal seeker? ie Mach number, altitude where seeker needs to operate. Is there a preferred IR band? Is it an EO/IR seeker only? Would it be possible to set up a conference call to discuss the requirements in more detail?

**Response:** Hypersonics by definition is greater than Mach 5. Further flight information may be provided after agreement award. Publicly available flight data may be utilized to set up the proposal framework. The proposer shall propose an approach and EO/IR bands of interest. This RFS solicitation is primarily interested in EO/IR solutions.

28. **Question:** Fixed Price - will the Government consider proposals with Cost-Plus contracting structures (in lieu of the Fixed Priced development structure noted in Section 10.b.iii) as non-compliant?

**Response:** The RFS is seeking Fixed Price proposals. Proposers may state why a cost plus approach may be more beneficial and explain why, but the current request is for Fixed Price.

29. **Question:** Strike vs Defense mission - is the Government primarily interested in this technology applied to terminal sensing of ground/surface targets for a hypersonic strike application? Or is this technology intended for application to a homing seeker for hypersonic threat defeat? If the answer is both, which one is higher priority?

**Response:** This RFS is primarily interested in addressing strike applications.

30. **Question:** Vehicle/Platform – will the Government provide details of the designated terminal glide body / KV? a. The referenced SCG is for Conventional Prompt Strike. If the vehicle of interest is not CPS, then will we receive another SCG?

**Response:** The government will provide necessary vehicle details upon agreement award.

31. **Question:** Performance requirements – can the Government provide performance envelopes pertaining to trajectories (time, altitude, velocity, angle of attack, etc.) and target sets?

**Response:** Trajectory and target information will be provided upon agreement award. Publicly available data on hypersonic flight may be utilized for setting up the proposal framework.

32. **Question:** Partial vs Full program – will the Government deem responses that only address a portion of the Desired End State (e.g. only addressing the window development and testing challenge) listed in section 5 as non-compliant?

**Response:** The desire is for a full approach. Proposals are welcome addressing unique challenge sets. However, proposals enveloping the whole solution will be weighted higher. Proposers are welcome to find partners that would provide a full solution. NSTXL is able to help find partners if desired.

33. **Question:** Timeline – will the Government provide a period of performance and a notional timeline for the culminating events/deliverables (Final Flight Test, PRR, and Final Report)? a. Will the Government deem acceptable additions to and deviations in the order of Project Deliverables (Section 6)?

**Response:** The government will identify timelines for events such as flight tests upon agreement award. However, the proposer shall develop their schedule in accordance with the period of performance defined in Section 7 of the RFS. Propose the specific approach necessary to complete the solution, but include the deliverables defined in Section 6.

34. **Question:** Government Furnished – Should the proposers assume that Sounding Rocket and Flight Tests be GFE/GFS? Additionally, should a bid include the cost for range safety and flight test support?

**Response:** The sounding rocket and flight tests may be assumed GFE. However, the proposal shall account for anything unique to collect and analyze your data.

35. **Question:** Maturity – What is the Government’s assessment of TRL/MRL maturity for existing hypersonic-capable EO/IR homing seeker solutions?

**Response:** This information isn’t necessary for proposal submission.

36. **Question:** The RFS calls for the development and demonstration of a hypersonic-capable EO/IR homing seeker during the terminal guidance phase. a. What target set should this seeker be designed to address? Specifically, is this effort oriented toward land or sea based targets? Can you provide us a representative IR target signature of interest? b. We are concerned that an EO/IR homing seeker would not provide all-weather capability and that a radar homing seeker is more appropriate. Will proposals that develop a hypersonic-capable radar homing seeker be funded?

**Response:** (a.) Ground targets – further target information will be provided upon agreement award. (b.) This solicitation is pursuant of EO/IR solutions.

37. **Question:** Offensive and defensive applications are mentioned in the RFS. The seeker operating conditions are likely very different for offensive and defensive applications. Is the NSWC interested in funding proposals for defensive-only applications?

**Response:** Offensive applications are of greater interest for this RFS.

38. **Question:** What is intended for Deliverable 11 (Flight Test)? We presume that a sounding rocket flight test (Deliverable 12) would create a hypersonic environment for the seeker, so what sort of flight test is Deliverable 11? (We note that an EO/IR seeker will be designed to operate through the heat generated

by the hypersonic environment, and also through the bow-shock environment. Therefore, a flight test that does not generate the bow-shock environment would not be representative.)

**Response:** The developmental test (sounding rocket) is to demonstrate the capability in a relevant hypersonic environment. The flight test is intended to test and validate the capability prior to a developmental test. Identify specific tests necessary to characterize and validate the capability.

39. **Question:** Would provisions be possible to allow a greater role for Federally Funded Research and Development Centers (FFRDCs)? per federal acquisition requirements, FFRDCs cannot participate on responses to announcements when price is a selection factor.

**Response:** We are not aware of provisions to allow an FFRDC to compete at this time.

40. **Question:** Will extensions be allowed or considered for this solicitation? It is currently due on 1/29/2021. However, if extensions are granted a 30 day extension is respectfully requested that would allow time to get quotes back from subcontractors that will be required for this effort.

**Response:** The proposal submission date has been extended to Friday 26 February 2021.

41. **Question:** Will NSTXL extend the due date for the Proposal by two weeks?

**Response:** See response to question #40.

42. **Question:** What are the government's expectations for the test campaigns outlined the RFS? a. What is the government's expectations of differences regarding the developmental flight test and final flight test? b. What are the government's plans for the specific vehicle to be tested for the developmental flight test and full-on flight test?

**Response:** The government expects adequate testing and validation of the capability be completed before reaching the developmental test (sounding rocket) and final flight test. (a.) The developmental test is intended to test the capability in a relevant hypersonic environment. The final flight test is a full-on flight test with a test platform version of the final flight vehicle. (b.) Flight platform details and timelines will be provided upon agreement award.

43. **Question:** Per Project Deliverable #9 ("Environmental Qualification Tests") in Section 6 of the RFS, will the government provide access and funding support for: 1. Arc Jet Testing? 2. Wind Tunnel Testing?

**Response:** Identify specific tests necessary to validate and characterize the seeker technology. Government will assist in selecting proper facilities. Proposers shall account for ground test costs in their proposal.

44. **Question:** What will be included in the package of information that will be provided upon award?

**Response:** Relevant and necessary information to execute the proposed solution shall be provided. Identify necessary information in the proposal. Program-specific information, details on the final vehicle, and schedules are a few of the details that will be provided upon contract award.

45. **Question:** Does the hypersonic seeker need to support GPS denied navigation functions (such as celestial navigation) in addition to traditional closed loop guidance?

**Response:** The RFS is requesting a “EO/IR seeker prototype (that) will provide a GPS-independent, hypersonic-capable terminal seeker” and “the required window material and the integration of the window ... will also be included in this effort”. A solution that also provides navigation prior to the terminal phase would be considered.

46. **Question:** Is the Conventional Prompt Global Strike vehicle the objective platform for integration and flight test? If not, what is the objective platform (Ground or Sea launched)?

**Response:** Vehicle information will be provided upon agreement award.

47. **Question:** Does the hypersonic seeker need to support GPS denied navigation functions (such as celestial navigation) in addition to traditional closed loop guidance?

**Response:** The RFS is requesting a “EO/IR seeker prototype (that) will provide a GPS-independent, hypersonic-capable terminal seeker” and “the required window material and the integration of the window ... will also be included in this effort”. A solution that also provides navigation prior to the terminal phase would be considered.

48. **Question:** Is the Conventional Prompt Global Strike vehicle the objective platform for integration and flight test? If not, what is the objective platform (Ground or Sea launched)?

**Response:** Vehicle information will be provided upon agreement award.

49. **Question:** Can or will NSWC provide documentation describing the anticipated operational and non-operational environment?

**Response:** Operational environment information may be provided as necessary for project execution upon agreement award.

50. **Question:** What is the desired or required TRL and MRL at the end of the program?

**Response:** The desired TRL and MRL at the conclusion of the program is a TRL 7 and MRL 7.

51. **Question:** Can or will NSWC provide documentation describing the Size, Weight and Power (SWAP) requirements? Also, will there be any outer mold line geometry details provided for the flight test vehicle?

**Response:** Further vehicle information necessary for capability development and vehicle interfacing will be provided upon agreement award. Proposers shall offer threshold and objective targets for size, weight, and power (SWaP).

52. **Question:** Will the sounding rocket represent the shock, vibration and temperature environments of the guided flight test vehicle? What are the objectives for this test?

**Response:** The objectives for the sounding rocket test are to test the capability in a relevant hypersonic environment to raise the TRL, but it isn't necessarily a replica of the full-on flight test.

53. **Question:** Does NSWC have or can provide access to a Hardware-In-The Loop Facility (HWIL) and System Integration Lab (SIL) to support pre-flight seeker integration and evaluation?

**Response:** Yes, NSWC Crane and government have the mentioned facilities. However, identify specific characterization necessary to test and characterize the seeker technology. Government will assist in selecting proper HWIL and SIL facilities.

54. **Question:** Will the answers to these questions be provided prior to proposal due date and if so, what is the anticipated release date? Will they go to all parties?

**Response:** Yes, these answers will be provided publicly prior to the proposal due date.

55. **Question:** Has the Government identified a specific contract type (Cost, Fixed, etc.) for this requirement?

**Response:** Section 10 of the RFS states Fixed Price.