

## Synopsis:

THIS REQUEST FOR INFORMATION (RFI) IS FOR INFORMATIONAL AND PLANNING PURPOSES ONLY AND SHALL NOT BE CONSTRUED AS A REQUEST FOR PROPOSAL, REQUEST FOR QUOTE, OR AS AN OBLIGATION ON THE PART OF THE GOVERNMENT. THERE WILL NOT BE A SOLICITATION, SPECIFICATIONS, OR DRAWINGS AVAILABLE. THIS ANNOUNCEMENT MAY OR MAY NOT TRANSLATE INTO AN ACTUAL PROCUREMENT(S) IN FUTURE YEARS. THERE IS NO FUNDING ASSOCIATED WITH THIS ANNOUNCEMENT.

**Background:** The material and information submitted in response to this RFI will be reviewed by the Small Surface Combatant Task Force (SSCTF) as concepts of operations, capabilities and requirements are developed and assessed.

Small surface combatants enable the Navy to implement the Defense Strategic Guidance (DSG) imperative to develop innovative, low-cost, and small-footprint approaches to achieve our security objectives. This type of ship provides Combatant and Fleet Commanders a uniquely suitable asset for Theater Security Cooperation tasking and select sea control missions. These small surface combatants build and strengthen maritime relationships by operating with partners and allies in various theaters of operation.

**Request for Information:** The Navy is interested in market information pertinent to a future small surface combatant (including modified Littoral Combat Ships (LCS)). In particular, whole ship design information, including cost, on mature ship designs and mature concept designs that have the capability and lethality generally consistent with a small surface combatant is desired.

The Navy is interested in the perspective of experienced shipbuilders, ship design agents and large system integrators on how their ship design supports the roles and missions of a small surface combatant, and cost information, especially the cost drivers, associated with the level of capability inherent in their designs (i.e., how capability drives cost).

The information is requested to be organized in the following manner:

- I. Ship Design Description and Characteristics
  - II. Mission, CONOPs and Performance Assessment
  - III. Cost and Schedule Estimates
  - IV. Innovation and Affordability
- I. Ship Design Description and Characteristics. Provide the usual and customary naval architecture, marine engineering and warfare systems particulars to include, but not limited to, the following:
- a. Naval Architecture:
    - i. Hull Type
    - ii. Hull Body Plan

1. Inboard Profile
  2. General Arrangements
  3. Topside Arrangements
  - iii. Design Standards (NCDS, NVR, HSNC, SVR, etc.)
  - iv. Hull Material
  - v. Superstructure Material
  - vi. Topside Design and flexible, modular attributes
  - vii. Length Overall
  - viii. Length Between Perpendiculars
  - ix. Beam, max
  - x. Beam at the waterline
  - xi. Full Load Displacement
  - xii. Single Digit Weight Report (including lightship displacement, design and builder's margins, loads, include centers of gravities)
  - xiii. Draft (Full Load)
  - xiv. Air Draft (Light Ship)
  - xv. Stability (intact and damaged stability and the stability criteria)
  - xvi. Service Life
  - xvii. Service Life Allowance for weight
  - xviii. Service Life Allowance for KG
  - xix. Shock, Vibration, and Environmental Analysis and Qualifications
  - xx. Flexible and modular attributes of hull and general arrangements
- b. Marine Engineering:
- i. Propulsion Plant Description
  - ii. Electric Plant Description
  - iii. Auxiliaries Description
  - iv. Machinery Control System Description
  - v. Max Speed
  - vi. Sustained Speed
  - vii. Range at Sustained Speed
  - viii. Range at endurance speed
  - ix. Manning and Crew Accommodations to include Officer, Chief Petty Officer, Enlisted, mixed gender
  - x. Underway days of Independent Operations (crew accommodations, habitability and provisioning support)
  - xi. Underway Replenishment Capabilities
  - xii. Redundant mechanical systems
  - xiii. Segregated critical systems
  - xiv. Firefighting
  - xv. Dewatering
  - xvi. Shock, Vibration, and Environmental Analysis and Qualifications
  - xvii. Medical/First aid
  - xviii. Margins and Service Life Allowances for electrical power and chill water
- c. Warfare Systems:

- i. Ship Control and Navigation
- ii. Communications
- iii. Sensors
- iv. Weapons
- v. Electronic Warfare
- vi. Combat Management System
- vii. Command and Control
- viii. Ship Network Architecture (H,M&E, Communications, Navigation, combat systems, administration, etc.)
- ix. Shock, Vibration, and Environmental Analysis and Qualifications
- x. Open Systems Architecture Standards
- xi. Flexible Infrastructure and Modular Payload Characteristics

- II. Mission, CONOPs and Performance Assessment. Performance and effectiveness analysis should be submitted that accurately represents the capabilities asserted in the submitted design particularly in the areas of surface warfare, undersea warfare, air warfare, mine warfare, lethality, survivability, endurance, range and speed.

The Navy is particularly interested in how the ship design fits within the operational concept for a small surface combatant, and to what extent the ship's capabilities are dependent on operations within a supporting/supported force structure as phases of operations proceed from peacetime presence to full scale conflict. The intent in requesting this information is to fully understand your concept for integrating your small surface combatant design into naval and Joint force operations.

Provide a description of the operational environment and concept of operations in which the ship is intended to operate.

Additionally, identify challenging and/or prohibitive environments for independent operations and your thoughts on mitigating these challenges.

- III. Cost and Schedule Estimates. The Navy is interested in estimated cost and schedule information for designing, building, testing and delivering the first ship and a notional class of 20 small surface combatants. The Navy is interested in all pertinent data and assumptions related to the provided estimates, to the lowest level available, and requests information be provided in the following format:

- a. Acquisition strategy
  - i. Procurement profiles
  - ii. Schedule:
    1. Long Lead Time
    2. Start of Construction
    3. Launch
    4. Delivery
  - iii. Build /contracting

- b. Ship Costs
  - i. R&D
  - ii. Procurement:
    - 1. Engineering:
      - a. Non-Recurring / Detailed Design
      - b. Recurring
    - 2. Ship Production:
      - a. Lead Ship:
        - i. Labor Hours (Touch and Support)
        - ii. Material
      - b. Follow Ships:
        - i. Labor Hours (Touch and Support)
        - ii. Material
        - iii. Learning Curve
        - iv. Economic Order Quantity / Bulk Purchase Breakpoints - Potential for Material and/or Labor savings if a certain number of units is procured in a certain timeframe / conditions (e.g., 3-5 ships in a year will save X% or a block or MYP contracting scenario for Y ships will save Z%)
    - 3. Ship System Cost Divers
    - 4. System / Requirements / Capabilities that drive costs (e.g., Propulsion, Flexible Infrastructure)
- c. Combat Systems Costs
  - i. R&D:
    - 1. System Specific Development
    - 2. Integration of Systems
    - 3. Test and Evaluation
  - ii. Procurement:
    - 1. Systems
      - a. Lead
      - b. Follow
    - 2. Platform Installation, Integration and Testing
- d. Operations and Support Costs
  - i. Manning
    - 1. Crew
    - 2. Shore Support
    - 3. Training
  - ii. Crewing Philosophy
  - iii. Operations
    - 1. Fuel Costs
    - 2. OP-Tempo
      - a. Speed-Time profile and fuel burn
      - b. Days Underway

- iv. Maintenance Costs:
  - 1. Organizational and Intermediate Maintenance
  - 2. Depot
  - 3. Modernization
- v. Service Life Assumptions

In reviewing your response to this RFI, the Navy will be particularly interested in understanding your cost and schedule information and estimates for the first ship, to include:

- a. Shipbuilding NRE Costs
- b. Combat System NRE for System Development, Integration and T&E
- c. Recurring Costs
- d. Material Costs
- e. Assumed GFE Costs
- f. Engineering Man Hours
- g. Production Man Hours
- h. Months to complete Preliminary Design Review (PDR)
- i. Months to complete Critical Design Review (CDR)
- j. Months between Contract Award (CA) and Production Readiness Review (PRR)
- k. Long Lead Time Material Analysis and Needs
- l. Months from start of fabrication to launch
- m. Months from launch to trials and delivery
- n. Operations and Support Costs (manning, operations, maintenance, modernization)

The Navy is also interested in follow ship and average ship estimates assuming a notional 20 ship small surface combatant requirement. The Navy is interested in the shipbuilder's assessment of the most affordable procurement profile to achieve efficient shipyard loading. The Navy is interested in yard capacity and loading analysis (manning and throughput), and economic order quantities. The Navy is interested in the shipbuilder's assessment and technical risk of the impact of the integration and test of the combat system suite.

- IV. Innovation and Affordability. The Navy is also interested in any innovative acquisition and shipbuilding approaches to include strategies that utilize build-to-print of existing mature designs, maximize the capabilities of the shipbuilding industrial base, cost effectively deliver small surface combatant capabilities and requirements, and provide for and maintain a competitive environment. Provide a discussion on the benefits, barriers and challenges associated with the innovative approaches offered and recommended solutions. The following information is of particular interest:

- a. Most recent relevant (similar in size/complexity) detailed designs completed

- b. Detailed design approach (design tools, file formats, design standards, product deliverables, etc.)
- c. Total labor hour estimate for the detailed design package effort
- d. Schedule estimate for the detailed design package
- e. For existing designs in production, estimates of non-recurring engineering (NRE) tasks and hours which would be accomplished by the shipbuilders prior to construction of the first small surface combatant.
- f. Industry perspectives on potential benefits and challenges to implementing a Build-to-Print approach. In support of understanding the impact of such an approach on the post-award effort at the shipyard, the following information is requested:
  - i. Build Standards typically used for your products (e.g., ABS Steel Vessel Rules, NVR, etc.)
  - ii. Rough estimate of how long it would take to translate a provided design into Work Packages and Production Information for a vessel the size and capacity generally consistent with a small surface combatant. Please identify any assumptions used.
  - iii. Advantages, disadvantages and risks of a Build-to-Print approach from the Shipbuilder perspective
  - iv. Perceived advantages, disadvantages and risks to the Government of a Build-to-Print approach
  - v. Design Programs/Software used within your shipyard to develop designs and the production information used by the trade craft (e.g., machinists, cutters, welders, electricians, etc.)
  - vi. Known compatible and efficient design software translation tools effective at sharing ship design technical data packages.
  - vii. Past experience with Build to Print contracts
- g. Industry perspective and innovative ideas on design for affordability
- h. Industry perspective on affordable ship procurement, acquisition and contracting strategies
- i. Ideas to stimulate and support vigorous competition and innovation in the shipbuilding industry
- j. Perspective on cost-effectively sustaining the industrial and technological capabilities in the naval combatant shipbuilding base that identifies reversible and non-reversible capacity and capability, and criticality and fragility assessments of skills and products within the shipyard and throughout the supply chain.
- k. Perspectives, benefits, challenges and risks on use of foreign suppliers/World Market

Interested shipbuilders, design agents and large integrators are encouraged to respond to this announcement. In the responses, companies should also include:

1. Organization Name
2. Address

3. Point of Contact:

- (1) Name
- (2) Position/Title
- (3) Email address
- (4) Telephone number

Responses shall be no more than 25 pages in length and be preferably in plain text, Microsoft Office, or Adobe PDF electronic formats.

Responses should be sent by electronic mail to the NAVSEA point of contact, Ms. Cristina Covalt, Contracting Officer, [cristina.covalt@navy.mil](mailto:cristina.covalt@navy.mil), Phone: 202-781-1759

WHEN TO SUBMIT: This information is requested to be provided by email by 3:00PM, 22 May 2014.

NOTICES REGARDING SOLICITATION:

This RFI does NOT constitute a Request for Proposal and is not to be construed as a commitment, implied or otherwise, by the Government that a procurement action will be issued.

No telephone inquiries will be accepted and requests for solicitation packages will not be honored, as no solicitation is intended at this time.

Response to this notice is not a request to be added to a bidders list or to receive a copy of a solicitation.

THE GOVERNMENT DOES NOT INTEND TO AWARD A CONTRACT SOLELY ON THE BASIS OF THIS RFI.

No entitlement to payment of direct or indirect costs or charges by the Government will arise as a result of the submission of the requested information.

No reimbursement will be made for any costs associated with providing information in response to this announcement and any follow up information requests.

Responses to this RFI may be considered in the future determination of an appropriate acquisition strategy for the program.

The Government may not respond to any specific questions or comments submitted in response to this RFI or information provided as a result of this request.

Any information submitted by respondents as a result of this notice is strictly voluntary.

NOTICE REGARDING PROPRIETARY INFORMATION: All submitted materials will be designated for Government Use Only. Third party support contractors providing support to the SSCTF will have access to the submitted material. These contractors have executed non-disclosure agreements. Submission of material requested in this RFI shall constitute consent to allow access to the material/information by any relevant third party support contractor supporting the SSCTF. Submitted material/information will be safeguarded in accordance with the applicable Government regulations.

IMPORTANT - Any email containing export controlled information must be marked FOUO and use encryption.