# Code 25 Industry Day Brief

*06 November 2024*

# Agenda

- Introduction/Ground Rules

- Disclaimer Statement

- Background Information

- Anticipated Procurement Strategy

- Technical Requirements

- Conclusion/Wrap-Up

- Introduction of participants
  - NUWCDIVNPT Technical Code 25
  - NUWCDIVNPT Contracts Department

- Intent of Industry Day
  - Encourage competition by:
    - Ensuring all potential offerors receive and have access to the same information

- Technical "Q&A" is encouraged
  - Q&A (all questions submitted in writing) will be answered via the SeaPort-NxG Portal

- Forms and receptacle are located at the Registration Table

- Please silence cell phones and pagers

- No personal recording

- The Q&A and "Distribution Statement A" slides will be posted to the SeaPort-NxG portal and the Contracting & Office of Small Business Outreach page
  - Link: https://www.navsea.navy.mil/Home/Warfare-Centers/NUWC-Newport/Partnerships/Contracting-and-Small-Business/Outreach-Events/

- DO NOT directly contact NUWC technical code after today – all further dialogue will be accomplished via the Q&A feature on the SeaPort-NxG portal

- Requirements contained in this briefing are presented as a summary

*Full/updated requirements will be provided in the Requests for Proposal (RFP)*
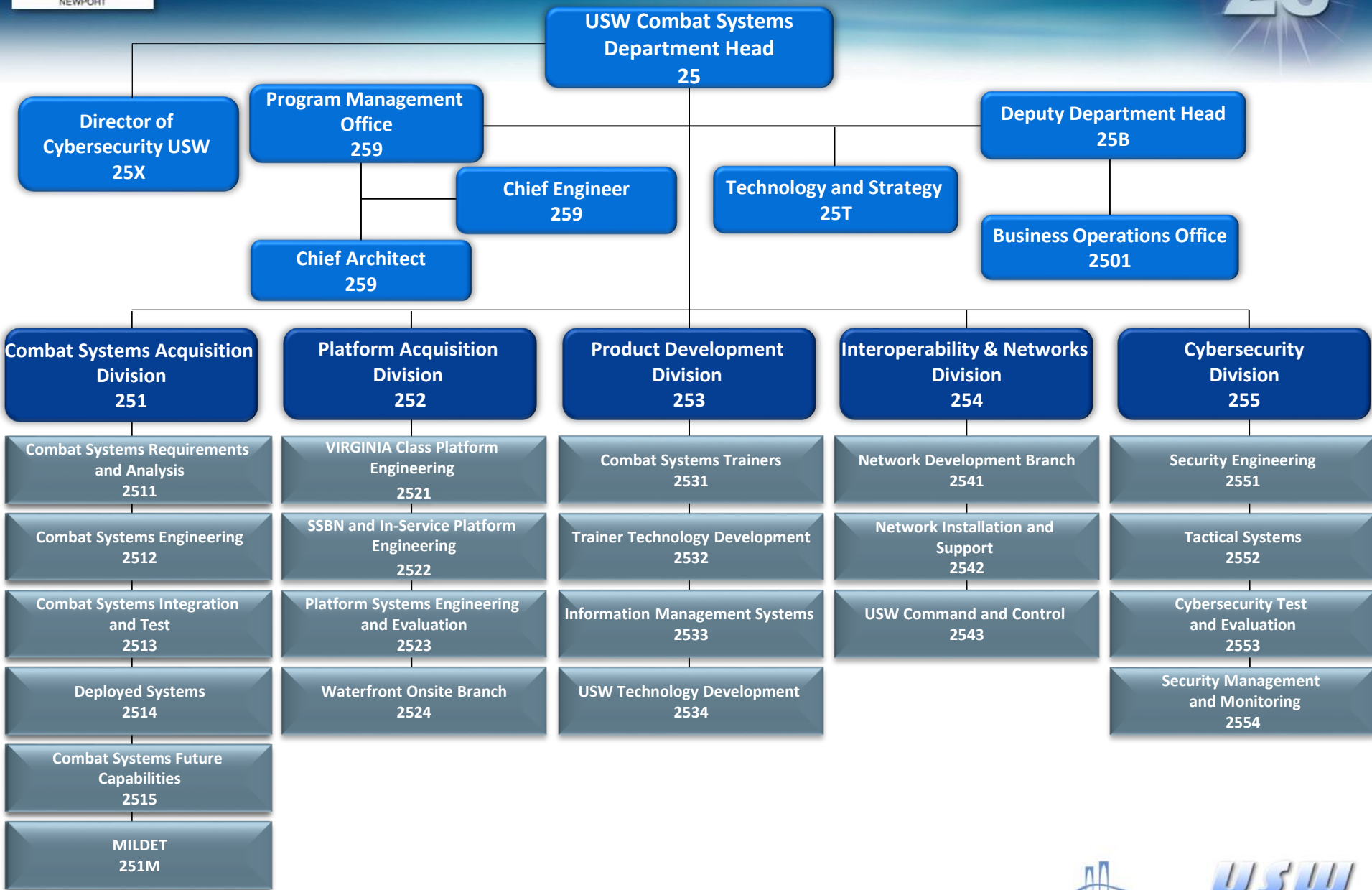
# Disclaimer Statement

- Remarks today by Government officials involved in today's presentations should not be considered a guarantee of the Government's course of action in proceeding with any of the planned acquisitions discussed

- The informational briefing shared today reflects current Government intentions and is subject to change based on a variety of circumstances

*The formal solicitation, when issued, is the only document that should be relied upon in determining the Government's requirements*
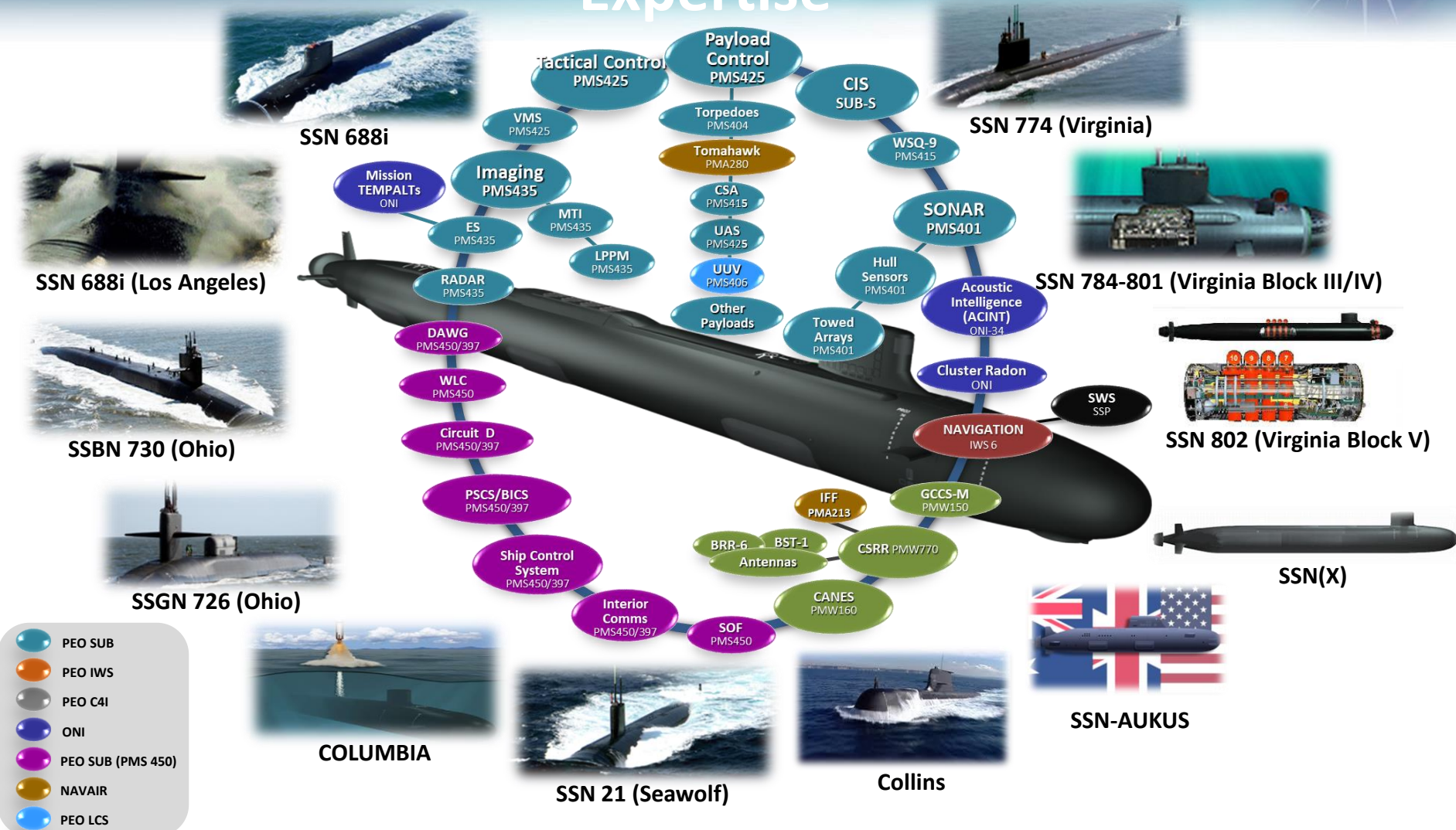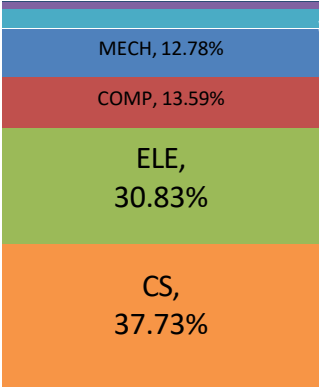
# USW Combat Systems Department

**USW Combat Systems Department Head** — 25

**Director of Cybersecurity USW** — 25X

**Program Management Office** — 259

**Deputy Department Head** — 25B

**Chief Engineer** — 259

**Technology and Strategy** — 25T

**Chief Architect** — 259

**Business Operations Office** — 2501

## Combat Systems Acquisition Division — 251

- Combat Systems Requirements and Analysis — 2511
- Combat Systems Engineering — 2512
- Combat Systems Integration and Test — 2513
- Deployed Systems — 2514
- Combat Systems Future Capabilities — 2515
- MILDET — 251M

## Platform Acquisition Division — 252

- VIRGINIA Class Platform Engineering — 2521
- SSBN and In-Service Platform Engineering — 2522
- Platform Systems Engineering and Evaluation — 2523
- Waterfront Onsite Branch — 2524

## Product Development Division — 253

- Combat Systems Trainers — 2531
- Trainer Technology Development — 2532
- Information Management Systems — 2533
- USW Technology Development — 2534

## Interoperability & Networks Division — 254

- Network Development Branch — 2541
- Network Installation and Support — 2542
- USW Command and Control — 2543

## Cybersecurity Division — 255

- Security Engineering — 2551
- Tactical Systems — 2552
- Cybersecurity Test and Evaluation — 2553
- Security Management and Monitoring — 2554

# System of Systems (SoS) Engineering Expertise

SSN 688i


SSN 688i (Los Angeles)


SSBN 730 (Ohio)


SSGN 726 (Ohio)


COLUMBIA


SSN 774 (Virginia)


SSN 784-801 (Virginia Block III/IV)


SSN 802 (Virginia Block V)


SSN(X)


SSN-AUKUS


SSN 21 (Seawolf)


Collins

## Diagram nodes

- Tactical Control PMS425
- Payload Control PMS425
- CIS SUB-S
- VMS PMS425
- Torpedoes PMS404
- WSQ-9 PMS415
- Mission TEMPALTs ONI
- Imaging PMS435
- Tomahawk PMA280
- SONAR PMS401
- ES PMS435
- MTI PMS435
- CSA PMS415
- LPPM PMS435
- UAS PMS425
- Hull Sensors PMS401
- Acoustic Intelligence (ACINT) ONI-34
- RADAR PMS435
- UUV PMS406
- Other Payloads
- Towed Arrays PMS401
- DAWG PMS450/397
- Cluster Radon ONI
- WLC PMS450
- SWS SSP
- Circuit D PMS450/397
- NAVIGATION IWS 6
- PSCS/BICS PMS450/397
- IFF PMA213
- GCCS-M PMW150
- Ship Control System PMS450/397
- BRR-6 BST-1 Antennas
- CSRR PMW770
- Interior Comms PMS450/397
- SOF PMS450
- CANES PMW160

## Legend

- PEO SUB
- PEO IWS
- PEO C4I
- ONI
- PEO SUB (PMS 450)
- NAVAIR
- PEO LCS

**Executing Technical Authority Across Programs, Platforms, and System of Systems**

# Our People – Skilled Workforce



Development Opportunities
- Academic Degree Program: 20
- Naval Postgraduate School: 5
- Fellowship: 1 (FY23)
- New Professional 219 Projects: 9

DATA, 0.20%

MECH, 12.78%

COMP, 13.59%

ELE, 30.83%

CS, 37.73%

PHYS, 1.22%

MTH, 3.85%

S & E 79%

STUDENT 1%

ADMIN SPCL 3%

S & E TECH 5%

INFOSEC 12%

## Education Profile

MASTER'S DEGREE

ASSOC... DEGREE

BACHELOR'S DEGREE

NO DEGREE

DOCTOR...

# World-Class Laboratories

- Powerful technical resource enabling prototyping, experimentation, development, integration and test, training, assessment, & certification

- Complement to workforce expertise

- Product lifecycle support for over 20 projects
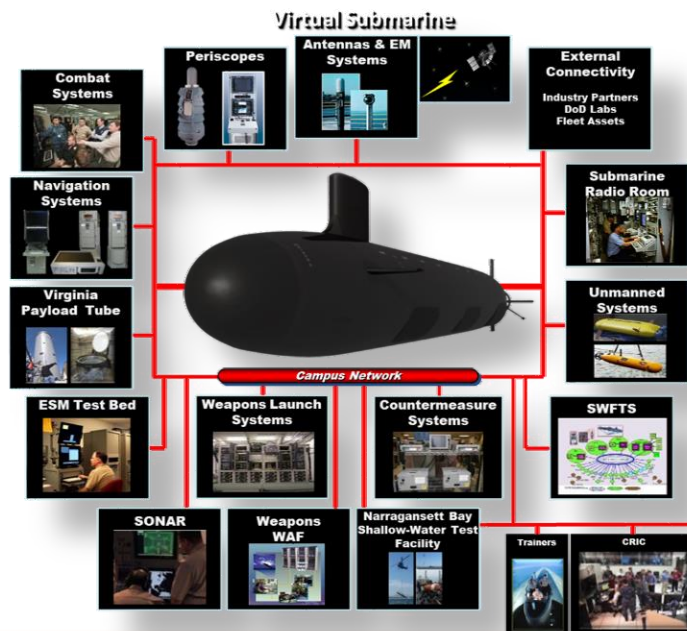




- External linkages via Wide Area Integration Facility (WAIF) to facilitate industry partnerships and promote efficient development and integration of new capabilities

- Core component of Virtual Submarine – Campus-wide connectivity of Division Newport facilities

# USW Combat Systems Programs
## Our Value

**Bridge to the Fleet**

Science & Technology → Development → Acquisition Support → Fleet Support

## Diverse Set of Customers Across SYSCOMs, ONR and the Fleet

- SSN(X) Concept Definition/Exploration
- Naval Tactical Cloud
- UxS Common Control System
- ONR Decision Superiority
- ONR Integrated Naval Prototypes
- Human Factors Engineering
- Cyber Security (Zero Trust and Multi Level Security)
- Combat Systems Hardware/Software/Network Architectures
- Combat System Arrangements

- Virginia Block VI/VII, SSN(X) and SSN AUKUS
- Combat Systems Virtualization
- SWFTS Re-architecture
- Live/Virtual/Constructive (LVC)
- Third Party Targeting and Cueing (3PT/C)
- Unmanned Aerial Systems Family of Vehicles (Small/Medium)
- Undersea Dominance Payload Prototyping
- AN/BYG-1 CI/CID Pipeline
- Cyber Security Systems Engineering
- VA MOD SSW (Mission Electronic Systems)
- Undersea Constellation

- AN/BYG-1
- TTWCS
- Conventional Prompt Strike (CPS)
- Virginia
- Columbia/Ohio
- Trainers (SMMTT, SBT)
- SWFTS
- Submarine CANES
- USW Strike
- International Programs
- Cybersecurity
- USW DSS
- Project Overmatch
- SSN AUKUS

- Submarine Combat Systems ISEA
- Ohio/Seawolf ISEA
- Tomahawk Logistics and Fleet Support
- SSGN Attack Weapon Control System
- Operational Documentation
- Trainer On Site Agents
- GCCS-M
- NTMPS
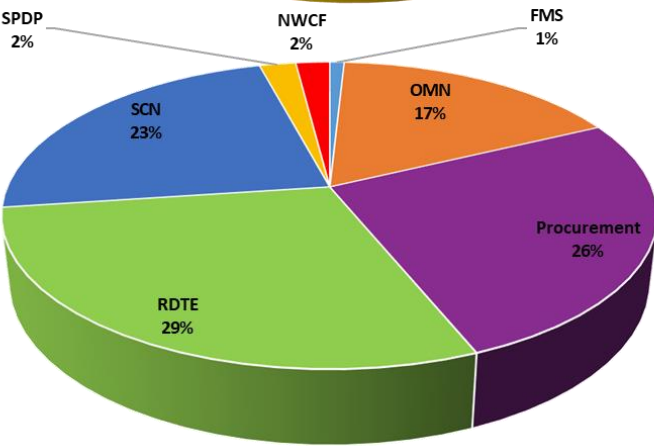- SEAWARE-LMS/SOBT
- Wartime Readiness
- Cyber Accreditation

USW Combat Systems

# Combat System Funding

**25**

## Funding Profile by Customer

*New Customers*
- *SSN AUKUS*

Pie chart — Funding Profile by Customer:
- PMS450 17%
- PEO USW TR 16%
- PMS425 14%
- SSP 9%
- PMS397 9%
- NAVWAR 7%
- PMS 351 6%
- Other Navsea 5%
- PMS396 5%
- NAVAIR 3%
- ONR 3%
- FLEET 2%
- NELO 1%
- PEO IWS 1%
- Non-Navy .4%
- DON-AUSN .4%
- Other Navy .2%
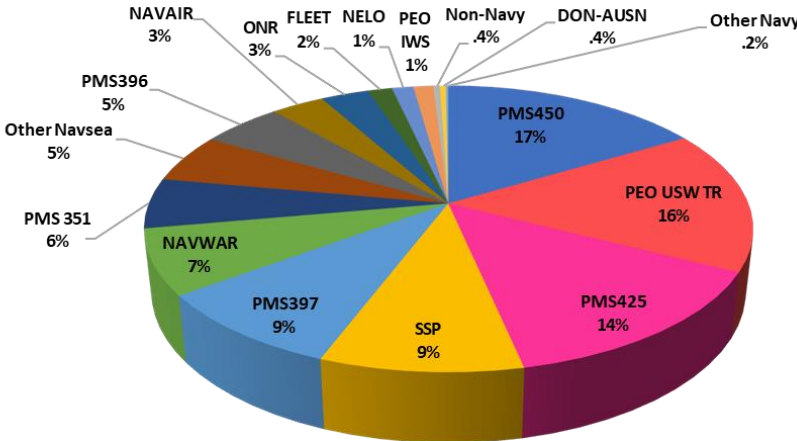
## Funding Profile by Appropriation

*Continue to Increase RDTE*

$388M* Plan for FY25
*FY24 TCHA data

Pie chart — Funding Profile by Appropriation:
- RDTE 29%
- Procurement 26%
- SCN 23%
- OMN 17%
- SPDP 2%
- NWCF 2%
- FMS 1%

*Steady demand for our products and services…9% increase over 2024*

# Code 25 In-Service Engineering Support

## RFP N66604-25-R-3004

## Predecessor RFP N66604-20-R-3003

- Summary of Contract Scope:
  - Technical services pertaining to the development, integration, test and evaluation, modernization, and sustainment of the In-Service LOS ANGELES, OHIO, SEAWOLF, VIRGINIA, COLUMBIA, VANGUARD and DREADNOUGHT Class Fleet. The services shall be provided to SSN, SSBN, and SSGN Non-Propulsion Electronics Systems (NPES) and associated subsystems/components. The scope includes Concept Development and System Requirements Review, Design and Analysis, Interface Definition, Platform Integration, Test and Evaluation, Fleet and Laboratory Installations, Obsolescence Investigation, Programmatic Technical Services, and Fleet Technical Services.

- RFP:                                          N66604-25-R-3004

- Predecessor RFP                               N66604-20-R-3003

- Contracting Method:                           SeaPort NxG

- Anticipated Period of Performance:            09/21/2025 – 09/20/2030

- Acquisition Strategy:                         Unrestricted

- Level of Effort:                              Estimated 630,500 hours & $7,878,351 ODCs

- Anticipated Work Location:                    70% Government Site, 30% Contractor Site

- Contract Type:                                CPFF

- Unique Characteristics:
  - Key Personnel requirements: Minimum of eight (8) Key Personnel (inclusive of Senior Technical Representative (STR)) to Cover Designated Areas of Expertise

  - Facility Security Clearance: Top Secret

  - Level of Safeguarding Required at Contractor Facility: Secret

  - Software Development Plan (SDP) required

  - Required Certifications/Designations: Cybersecurity Workforce (CWF) tasking

- Unique Characteristics (continued):
  - If large Other Direct Costs (ODCs) provide any details: ODCs for travel and incidental materials required for tasking

  - Follow on? Yes, follow-on to N00178-19-D-8623/N66604-20-F-3006, SEACORP, Acquisition Strategy was Unrestricted

  - Does OCOI clause apply? Yes

  - Expected RFP release: FY25 QTR 2

- Background:
  - The Naval Undersea Warfare Center Division, Newport, (NUWCDIVNPT) Undersea Warfare Combat Systems Department (Code 25) provides the requisite platform engineering, technical, test and evaluation (T&E), and programmatic services for the development, evaluation, modernization, and sustainment of In-Service LOS ANGELES, OHIO, SEAWOLF, VIRGINIA, COLUMBIA, VANGUARD, and DREADNOUGHT Class submarines. Current applicable systems include SSN, SSBN, and SSGN Non-Propulsion Electronics Systems (NPES); along with associated subsystems.
  - The services performed under this Statement of Work shall be performed at NUWCDIVNPT, the contractor's facility, or other locations, as required by the SOW and specified in individual Technical Instructions (TIs). Anticipated locations include submarine bases, shipyards, and laboratories at the following locations: Newport, RI; Groton, CT; Washington, D.C.; Bangor, WA; King's Bay, BA; Norfolk, VA; Portsmouth, NH; Pearl Harbor, HI; Guam, GU; San Diego, CA; Manassas, VA; Sidney, AU; Laurel, MD; Honolulu, HI; Bremerton, WA; Cape Canaveral, FL; Rockville, MD; Long Island, NU; Dahlgren, VA; London, UK.

- Scope:
  - Provide technical services pertaining to the development, integration, test and evaluation, modernization, and sustainment of the In-Service LOS ANGELES, OHIO, SEAWOLF, VIRGINIA, COLUMBIA, VANGUARD and DREADNOUGHT Class Fleet. The services shall be provided to SSN, SSBN, and SSGN Non-Propulsion Electronics Systems (NPES), associated subsystems, and Hull, Mechanical and Electrical components.
  - The scope of this requirement includes Concept Development and System Requirements Review, Design and Analysis, Interface Definition, Platform Integration, Test and Evaluation, Fleet and Laboratory Installations, Obsolescence Investigation, Programmatic Technical Services, and Fleet Technical Services.

- High Level SOW Tasking:

  - 4.1 Engineering Services
    - Develop studies, concepts, specification inputs, analyses, technical evaluations, obsolescence research, and risk assessments.
    - Review documentation to determine compliance with specifications and assess impacts to plans and designs.
    - Track Non-Propulsion Electronic Systems (NPES) and Undersea Warfare (USW) Platform issues and provide recommended solutions.
    - Provide inputs for NPES and USW Platform Hull, Mechanical and Electrical (HM&E) modernization.
    - Assess technical deficiencies and issues.
    - Prepare, review, and update USW Platform and NPES system documentation.
    - Provide hardware and software component design, development, and manufacturing recommendations.
    - Develop, review, and update engineering changes and system-level documentation.
    - Develop alterations and installation memorandums.
    - Review technical documentation and assess impacts to change proposals.
    - Develop and review change proposals and project plans.
    - Review engineering changes and system-level documentation to assess TRIDENT Life Cycle Support Facility (LCSF) impacts.

- 4.2 Installation, Integration, Test & Evaluation, Fleet and Laboratory

  - Develop and review test plans and procedures.

  - Recommend solutions for emergent installation issues.

  - Install engineering changes.

  - Install TRIDENT Life Cycle Support Facility (LCSF) engineering changes.

  - Maintain TRIDENT LCSF equipment.

  - Conduct NPES and USW Platform testing.

  - Perform NPES and USW Platform program problem investigation, re-creation, and resolution.

- ## 4.3 Programmatic
  - Prepare technical and programmatic data for program reviews and status tracking.

- ## 4.4 Cybersecurity Workforce (CWF)
  - Personnel performing cyber functions maintain proper training and qualifications, and provide a monthly CWF report on compliance.

*DISTRIBUTION STATEMENT A. Approved for public release.*

Required Key Personnel inclusive of the STR, covering the below areas of expertise. (minimum of eight (8) Key Personnel inclusive of the STR; offerors shall provide proposed list of Key Personnel that covers all of the required areas of expertise).

Note that "Journeyman level experience" is considered equivalent to 5-9 years experience and "Expert level experience" is equivalent to 10+ years experience.

(1) Platform\NPES\USW System and Subsystem Analysis (Applicable SOWs 4.1, 4.2, 4.3).
   (i)   Journeyman level experience developing feasibility studies and operational concepts;
   (ii)  Journeyman level experience developing technical specifications;
   (iii) Journeyman level experience performing obsolescence research;
   (iv)  Journeyman level experience in platform Submarine Environmental Qualification Testing and requirements, platform interfaces, platform subsystems and platform characteristics.
   (v)   Journeyman level experience in performing subsystem Government Furnished Information (GFI) reviews to support proposed engineering changes.

(2) Platform\NPES\USW Change Development and Review (Applicable SOWs 4.1, 4.2, 4.3).
   (i)   Journeyman level experience developing and reviewing TEMPALTs;
   (ii)  Journeyman level experience developing and reviewing SHIPALTs, TRIDs, OCMODs;
   (iii) Journeyman level experience developing and reviewing Engineering Changes.

# Code 25 In-Service Engineering Support
## Key Personnel Requirements

Required Key Personnel inclusive of the STR, covering the below areas of expertise. (minimum of eight (8) Key Personnel inclusive of the STR; offerors shall provide proposed list of Key Personnel that covers all of the required areas of expertise).

Note that "Journeyman level experience" is considered equivalent to 5-9 years experience and "Expert level experience" is equivalent to 10+ years experience.

(3) Platform\NPES\USW Requirement and Specifications Review (Applicable SOWs 4.1, 4.2, 4.3).
   (i)   Expert level experience reviewing Top Level Functional Requirements;
   (ii)  Expert level experience reviewing System Specifications;
   (iii) Journeyman level experience reviewing Ship System Manuals and associated subsystem technical manuals.

(4) Platform\NPES\USW Installations (Applicable SOWs 4.1, 4.2, 4.3).
   (i)   Journeyman level experience developing prototype components to support Laboratory and Hull installations;
   (ii)  Expert level experience recommending solutions to issues encountered during NPES and USW Platform installations of TEMPALTs, SHIPALTs, and Engineering Changes;
   (iii) Expert level experience performing TEMPALT, SHIPALTs, TRIDs, OCMODs, and Engineering Change Installations in the TRIDENT LCSF;
   (iv) Expert level experience performing TEMPALT, SHIPALT, TRIDs, OCMODs, and Engineering Change Installations on-board In-Service Platforms;
   (v)  Journeyman level experience performing material availability research and inventory reviews to support LCSF Laboratory Installations.

Required Key Personnel inclusive of the STR, covering the below areas of expertise. (minimum of eight (8) Key Personnel inclusive of the STR; offerors shall provide proposed list of Key Personnel that covers all of the required areas of expertise).

Note that "Journeyman level experience" is considered equivalent to 5-9 years experience and "Expert level experience" is equivalent to 10+ years experience.

(5) Platform\NPES\USW Testing (Applicable SOWs 4.1, 4.2, 4.3).
   (i)   Journeyman level experience conducting Developmental Subsystem and Equipment Testing;
   (ii)  Journeyman level experience conducting Subsystem and System Integration Testing;
   (iii) Expert level experience conducting Certification, Operability and Regression Testing;
   (iv)  Journeyman level experience conducting Production Test Program Testing;
   (v)   Journeyman level experience developing and updating Test Plans, Procedures, and Scenarios;
   (vi)  Journeyman level experience coordinating integration and formal test events;
   (vii) Journeyman level experience conducting at sea test events.

Required Key Personnel inclusive of the STR, covering the below areas of expertise. (minimum of eight (8) Key Personnel inclusive of the STR; offerors shall provide proposed list of Key Personnel that covers all of the required areas of expertise).

Note that "Journeyman level experience" is considered equivalent to 5-9 years experience and "Expert level experience" is equivalent to 10+ years experience.

(6) TRIDENT LCSF Maintenance (Applicable SOWs 4.1, 4.2, 4.3).
  (i)  Expert level experience performing Periodic and Corrective Maintenance on all LCSF Support equipment (Configuration Management Switching System, Front End Stimulators, Towed Array Simulators, Monitoring Subsystem Data Converter Simulators, RADAR Simulators, Submarine Warfare Federated Tactical Systems (SWFTS) Simulator, Ship Control Functional Baseline, Control Simulation System, and SSSDC);
  (ii) Expert level experience performing Periodic and Corrective Maintenance on OHIO Class Legacy Launcher Equipment, and AN/BYG-1;
  (iii) Expert level experience performing Periodic and Corrective Maintenance on OHIO Class Ship Control and OER Ship Control Equipment;
  (iv) Journeyman level experience performing Periodic and Corrective Maintenance on OHIO Class Tactical Navigation Equipment (Navigation Processing Unit (NPU), Digital Hybrid Speed Log (DHYSL), Digital Depth Detector (DDD), AN/WSN-11 Gyrocompass) and IC
  (v)  Journeyman level experience performing Periodic and Corrective Maintenance on AN/BPS-15J and AN/BPS-16 RADAR Equipment;
  (vi) Expert level experience performing Periodic and Corrective Maintenance on DPS Equipment, including TSDC, AN/UYK-43, Mission Critical Workstations, and Multifunction Servers.

Required Key Personnel inclusive of the STR, covering the below areas of expertise. (minimum of eight (8) Key Personnel inclusive of the STR; offerors shall provide proposed list of Key Personnel that covers all of the required areas of expertise).

Note that "Journeyman level experience" is considered equivalent to 5-9 years experience and "Expert level experience" is equivalent to 10+ years experience.

(7) SEAWOLF Class System Engineering/Platform Integration (Applicable SOWs 4.1, 4.2, 4.3).
   (i)  Journeyman level experience with SEAWOLF Class Environmental Qualification Test (EQT) requirements (noise, vibration, shock) and test conduct, including test plans, procedures, reports, data collection and analysis;
   (ii) Journeyman level experience with USS JIMMY CARTER (SSN23) Multi-Mission Platform (MMP) operations and interfaces to forward end Non Propulsion Electronics Systems (NPES);
   (iii) Journeyman level experience with the Submarine Warfare Federated Tactical Systems (SWFTS) Non Propulsion Electronics System (NPES) Baseline Change Request (NBCR) Change process; and
   (iv)  Journeyman level experience with existing USS JIMMY CARTER (SSN23) Non Propulsion Electronics Systems (NPES) Vital Power and Rigged for Reduced Electrical (RRE) budget issues.

(8) Platform\NPES\USW Problem Resolution Support (Applicable SOWs 4.1, 4.2, 4.3).
   (i)   Expert level experience receiving Platform NPES and USW Problem Reports;
   (ii)  Expert level experience coordinating the investigation, re-creation, and resolution of Platform NPES and USW problem reports;
   (iii) Expert level experience resolving Platform NPES and USW Problems; and
   (iv) Expert level experience coordinating the distribution of Platform NPES and USW Problem resolutions.

# Code 25 Trainers Development

# RFP N66604-25-R-3001

# Predecessor RFP N66604-19-R-3511

- ## Summary of Contract Scope:
  - Technical services to maintain, modify, and upgrade software during all evolutions and deployments of trainer systems. This includes services to develop, design, and produce applications and systems that contribute substantially toward submarine combat system and surface ship trainer evolution. The goal of these prototypes and designs is to produce system updates capable of performance comparable to, or better than, baseline systems/subsystems, while being more affordable and less cumbersome for the operator.  Services shall include system analysis and development, technology refresh, and performance evaluation.

| | |
|---|---|
| RFP: | N66604-25-R-3001 |
| Predecessor RFP | N66604-19-R-3511 |
| Contracting Method: | SeaPort NxG |
| Anticipated Period of Performance: | 09/25/2025 – 09/24/2030 |
| Acquisition Strategy: | Unrestricted |
| Level of Effort: | Estimated 688,065 hours & $4,928,000 ODCs |
| Anticipated Work Location: | 90% Government Site, 10% Contractor Site |
| Contract Type: | CPFF |

- Unique Characteristics:
  - Key Personnel requirements: Minimum of six (6) Key Personnel (inclusive of Senior Technical Representative (STR)) to Cover Designated Areas of Expertise

  - Facility Security Clearance: Secret

  - Level of Safeguarding Required at Contractor Facility: Secret

  - Required Certifications/Designations: Cybersecurity Workforce (CWF) tasking

- Unique Characteristics (continued):
  - If large Other Direct Costs (ODCs) provide any details: ODCs for travel and incidental materials required for tasking

  - Follow on? Yes, follow-on to N00178-19-D-8194/N66604-20-F-3007, Northrup Grumman, Acquisition Strategy was Unrestricted

  - Does OCOI clause apply? Yes

  - Expected RFP release: FY25 QTR 2

- Background:
  - The Naval Undersea Warfare Center Division, Newport (NUWCDIVNPT) Code 25 is the developer of the Combat Control (CC) segment of submarine trainers and portions of shore-based surface ship trainers. Code 25 is responsible for the design, development, building, installation, upgrade, and maintenance of trainer simulation components at trainer facilities. Trainer systems shall provide simulation/stimulation capability to tactical submarine AN/BYG-1 and surface ship Anti-Submarine Warfare (ASW) and AN/SQQ-89 systems.
  - The majority of work will be performed at NUWCDIVNPT. Temporary Duty (TDY) travel locations include, but are not limited to: Bethesda, MD; Olney, MD; Groton, CT; Norfolk, VA; Kings Bay, GA; Bangor, WA; Silverdale, WA; San Diego, CA; Pearl Harbor, HI; Guam; Corona, CA; Manassas, VA; Syracuse, NY; Fairfax, VA; Virginia Beach, VA; Dahlgren, VA; Stirling, Western Australia; Orlando, FL; Yokosuka, Japan; Little Creek, VA; Morristown, NJ; Whidbey Island, WA, Wallops Island, VA; Portsmouth, NH; Jacksonville, FL; Cape Canaveral, FL; Mayport, FL.

- Scope:
  - Maintain, modify, and upgrade software during all evolutions and deployments of trainer systems. The Contractor shall develop, design, and produce applications and systems that contribute substantially toward submarine combat system and surface ship trainer evolution. The goal of these prototypes and designs is to produce system updates capable of performance comparable to, or better than, baseline systems/subsystems, while being more affordable and less cumbersome for the operator. Services shall include system analysis and development, technology refresh, and system design performance evaluation.
  - This effort shall also include variants of trainers pertaining to any core derivative architectural component in support of land-based test sites and on-board systems used for training purposes. This work statement encompasses technical services required for Trainer installation engineering. These services consist of analysis and development, trainer system impact analysis and design, code development and unit testing, system integration and test, problem troubleshooting and resolution, hardware fabrication, records maintenance, logistics support, interactive electronic technical manuals, configuration management, training, cyber security, technology infrastructure support, compliance assessment audit, and program support.

- ## High Level SOW Tasking:

  - ### 4.1 Analysis and Development
    - Analyze documentation to identify simulation elements of trainer systems.
    - Analyze documentation to identify Human Computer Interface (HCI) elements of trainer systems.

  - ### 4.2 Trainer System Impact Analysis and Design
    - Participate in tactical requirements and design reviews.
    - Develop and deliver trainer system and subsystem software design materials.
    - Update, develop and deliver AutoCAD format engineering drawings that identify system and subsystem hardware components to run and execute software for Government approval

- ## 4.3 Code Development and Testing
  - Develop and deliver software source and executable code.
  - Identify test cases to verify the functionality of software identified in requirements specifications.

- ## 4.4 System Integration and Test
  - Identify integration test cases to verify the functionality of software subsystems.
  - Integrate system components in accordance with Government approved design plans.

- ## 4.5 Problem Troubleshooting and Resolution
  - Debug and resolve system problems identified in the Government approved Defect Tracking System .
  - Update, develop and deliver a Version Description Document (VDD) for each trainer build

- ## 4.6 Hardware
  - Assemble, integrate, and deliver newly designed, next generation equipment provided by the Government using engineering drawings.
  - Fabricate equipment racks.
  - Fabricate and deliver prototype hardware devices using engineering drawings.

- ## 4.7 Installation
  - Install trainer system components at trainer sites.
  - Deliver training device components and lab environment components.

- ## 4.8 Records Maintenance
  - Maintain records of trainer components, and track hardware and media component deliveries to trainer sites.

- ## 4.9 Logistics Support
  - Provide logistics services including: material packaging, shipping, receiving, inspection, and inventory and tracking of training systems deliverables.

- ## 4.10 Interactive Electronic Technical Manual (IETM)
  - Update, or develop and deliver, an Interactive Electronic Technical Manual (IETM) illustrating system design update.

- ## 4.11 Configuration Management
  - Maintain configuration management of all trainer system software.

# Code 25 Trainers Development Technical Requirements

- ## 4.12 Training
  - Update, or develop and deliver, for Government approval, training documentation on the subject of trainer architectural components.
  - Conduct training on site using the approved training packages.
  - Support the process of qualifying several on-site maintenance personnel .

- ## 4.13 Cyber Security
  - Monitor the cyber security posture of simulation/stimulation and trainer development systems.
  - Design and manage systems (e.g. apply software patches, upgrade systems, and change operating system and networking parameters) to adhere to NUWCDIVNPT and DoD security requirements and policies and to respond to DoD Information Assurance Vulnerability Announcements (IAVA) and Information Assurance Vulnerability Bulletins (IAVB)

- ## 4.14 Technology Infrastructure Support
  - Maintain the trainers development infrastructure to support the software development and integration required to implement Government approved Trainer system designs.

- 4.15 Compliance Assessment Audit
  - Perform audits of records, documenting deficiencies, inaccuracies, current component locations, and Configuration Management requirements.

- 4.16 Program Support
  - Participate in Trainer Program and Design Reviews, Trainer Engineering Working Groups (EWG) and Trainer Integrated Product Team (IPT) meetings.

- 4.17 Cybersecurity Workforce (CWF)
  - Personnel performing cyber functions maintain proper training and qualifications, and provide a monthly CWF report on compliance.

**Required Key Personnel inclusive of the STR, covering the below areas of expertise. (minimum of six (6) Key Personnel inclusive of the STR; offerors shall provide proposed list of Key Personnel that covers all of the required areas of expertise).**

**Offerors shall propose the total key persons required and shall propose each key person with all of the proficiencies and experience requirements per Area of Expertise.**

**(1) Software Development – 2 Key Personnel (SOWs 4.1, 4.2, 4.3, 4.5, 4.7, 4.11, 4.12, 4.13, 4.14, 4.17).**

**Required Qualifications:**
- Bachelor's level degree in a quantitative field such as engineering or mathematics (e.g. Electrical Engineering, Computer Engineering, Computer Science, Information Technology, or Information Systems)
- 5 years of professional experience with software engineering, to include demonstrated proficiency and experience with all of the below:
    a. Requirements analysis, particularly with system-of-systems and microservices methodologies;
    b. Authoring Software Requirements Specifications and Interface Requirements Specifications;
    c. System Object Oriented design and generation of Design Documentation;
    d. Linux operating system and its Inter-Process Communications (IPC) mechanisms;
    e. Code development in C++;
    f. Scripting languages such as Bash or Python;
    g. The generation of Make files and compiling complex systems with many components including libraries under a Linux Software Development Environment (SDE);
    h. Using configuration management tools, such as Git, to maintain software application baselines;
    i. Virtualizing input/output devices on Linux systems; and
- Security+ certification or equivalent certification as found at the following website: https://public.cyber.mil/wid/cwmp/dod-approved-8570-baseline-certifications/

**Desired Qualifications:**
- Master's degree in a quantitative field such as engineering or mathematics (e.g. Electrical Engineering, Computer Engineering, Computer Science, Information Technology, or Information Systems)
- 10 years of professional experience with software engineering, to include the same categories of proficiencies and experience listed in the Required Qualifications

**(2) System Administration – 1 Key Personnel (SOWs 4.1, 4.8, 4.9, 4.11, 4.13, 4.14, 4.15, 4.16, 4.17).**

**Required Qualifications:**
- Bachelor's level degree in a quantitative field such as engineering or mathematics (e.g. Electrical Engineering, Computer Engineering, Computer Science, Information Technology, or Information Systems)
- 5 years of professional experience with System Administration, to include demonstrated proficiency and experience with all of the below:
  a. Maintaining Software Development Environment (SDE) infrastructures;
  b. Maintaining system level cybersecurity posture for SDE infrastructures;
  c. Diagnosing and resolving cybersecurity vulnerabilities;
  d. Setting up SDE components such as file management systems, data backups, account administration, file permission management and networking capabilities;
  e. Conducting configuration management on complex systems including the generation of system baselines utilizing tools, such as GIT; and
- Security+ certification or equivalent certification as found at the following website: https://public.cyber.mil/wid/cwmp/dod-approved-8570-baseline-certifications/

**Desired Qualifications:**
- Master's degree in a quantitative field such as engineering or mathematics (e.g. Electrical Engineering, Computer Engineering, Computer Science, Information Technology, or Information Systems)
- 10 years of professional experience with software engineering, to include the same categories of proficiencies and experience listed in the Required Qualifications

# Code 25 Trainers Development
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**(3) System Integration – 2 Key Personnel (SOWs 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.11, 4.12, 4.13, 4.14, 4.16, 4.17).**

**Required Qualifications:**
- **Bachelor's level degree in a quantitative field such as engineering or mathematics (e.g. Electrical Engineering, Computer Engineering, Computer Science, Information Technology, or Information Systems)**
- **5 years of professional experience with computer, network, or systems engineering, to include demonstrated proficiency and experience with all of the below:**
    - a. **Requirements analysis, particularly with system-of-systems and microservices methodologies;**
    - b. **Authoring System Requirements Definitions and Interface Requirements Specifications;**
    - c. **System Object Oriented design and generation of Design Documentation;**
    - d. **Linux operating system and its Inter-Process Communications (IPC) mechanisms;**
    - e. **Code development in C++;**
    - f. **Scripting languages such as Bash and Python ;**
    - g. **SysML markup language;**
    - h. **The generation of Makefiles and compiling complex systems with many components including libraries under a Linux Software Development Environment (SDE);**
    - i. **Configuration management tools such, as Git, to maintain software application baselines; and**
    - j. **Virtualizing input/output devices on Linux systems**

**Desired Qualifications:**
- **Master's degree in a quantitative field such as engineering or mathematics (e.g. Electrical Engineering, Computer Engineering, Computer Science, Information Technology, or Information Systems)**
- **10 years of professional experience with software engineering, to include the same categories of proficiencies and experience listed in the Required Qualifications**

**(4) Hardware Design – 1 Key Personnel (SOWs 4.1, 4.2, 4.6, 4.7, 4.16).**

**Required Qualifications:**
- **Bachelor's level degree in a quantitative field such as engineering or mathematics (e.g. Electrical Engineering, Computer Engineering, Computer Science, Information Technology, or Information Systems)**
- **5 years of professional experience with hardware engineering, to include demonstrated proficiency and experience with all of the below:**
  **a. Development of system level hardware design drawings in CAD and Visio;**
  **b. Keyboard Video Mouse (KVM) or PCoIP device switching;**
  **c. Network infrastructure design and component specification; and**
  **d. Intel-based computer system design and component specification.**

**Desired Qualifications:**
- **Master's degree in a quantitative field such as engineering or mathematics (e.g. Electrical Engineering, Computer Engineering, Computer Science, Information Technology, or Information Systems)**
- **10 years of professional experience with software engineering, to include the same categories of proficiencies and experience listed in the Required Qualifications**

# Conclusion/Wrap-Up

- Thank you for your interest in the Code 25 Industry Day for the Code 25 In-Service Engineering and Trainer Development Contracts

- This briefing will be posted to the SeaPort NxG Portal and the Small Business Outreach page

- "Q&A" (today's and subsequent) will be posted to the SeaPort NxG Portal

- DO NOT contact today's presenters
  - All further dialogue will be accomplished via the Q&A feature on the SeaPort NxG Portal