# PERFORMANCE WORK STATEMENT

**Mapping and Cartographic Services, Raster and Electronic Navigation Products**

**U.S. Department of Commerce National Oceanic & Atmospheric Administration**

**Office of Coast Survey Marine Chart Division**

### May 1, 2019

***\*Note that this sample has been revised from the source document on the Government Point of Entry as necessary to align formatting and applicable FAR procedures.\****

1. **Program Goals and Objectives**

The Marine Chart Division (MCD) of the Office of Coast Survey (OCS), National Ocean Service (NOS), National Oceanic & Atmospheric Administration (NOAA), a bureau of the U.S. Department of Commerce, maintains a Nautical Chart System (NCS) that underpins production of NOAA nautical charts, which are tools for safe, efficient and environmentally sound navigation in U.S. waters. Our mission is to provide charts and chart products for use in the maritime transportation system that moves over two thirds of all consumer goods purchased in the United States.

MCD’s current NCS consists of two production systems that maintain and generate nautical chart products for commercial and recreational mariners. The Nautical Chart System I (NCS I) and the Nautical Chart System II (NCS II) are being used in tandem to create all of MCD’s products and maintain MCD’s suite of 1024 Raster Nautical Chart (RNC) main panels and 1116 insets, as well as the full suite of approximately 1250 Electronic Navigation Charts (ENCs). This Performance Work Statement (PWS) covers activities related to the NCS I and II System products and deliverables.

Updated RNCs and ENCs generated from the NCS I and NCS II Systems serve commercial and recreational mariners, coastal resources managers, the scientific community, other NOAA programs and U.S. Government agencies, including the Coast Guard, Navy, National Geospatial Intelligence Agency, and non-governmental organizations, including the American Pilots Association and US Power Squadron.

The NCS I and NCS II programs conform to special work instructions, guidelines, Standard Operating Procedure (SOPs), Task Assistant Manager (TAM) documentation, specifications and standards contained in the MCD Nautical Chart Manual (NCM), Chart 1 Nautical Chart Symbols, Abbreviations, and Terms publication, MCD websites and Geo-referenced document source Registry database (GREG). ENC production also conforms to the International Hydrographic Organization Standard S-57, Transfer Standard for Digital Hydrographic Data, Edition 3.0 including Appendix B.1, the ENC production specifications and the most current version of Appendix B.1, Annex A, Use of the Object Catalog for ENC. ENC products must also pass quality assurance standards by conforming to S-57, S-58 validation checks performed using sevenC’s and dKart software. S-101 validation checks also will be required when S-101 becomes the international standard.

# Activities and Results

## NCS I

NCS I production will occur off-site. NCS I services are required to supplement the MCD nautical charting program existing staff, processes for continual maintenance of nautical source application, updating and modernization of existing raster chart files. The NCS I production line consists of raster edits made to each nautical chart main panel and any existing inset(s) separately. Raster edits are derived from shape-files, which are produced from source data applications to the Nautical Information System (NIS). Raster edit work assignments will consist of shape-files, which the Government will provide. The raster editing process must meet MCD resolution standards as found in .cit file metadata (762 dots per inch dpi) and geo-referenced as defined in each individual grid shape-file, .dgn and .wkt file metadata. The NCS I System is used in the maintenance of NOAA’s current suite of raster products: RNCs, Print-on-Demand (POD) charts, and raster Chart Tile sets.

## Background Knowledge

Continual updating of the Nautical Chart raster image files will be achieved through a raster editing process. Raster chart files (.cit image files) are the basis upon which edits will occur, overlaid upon Computer Aided Design (CAD) design (.dgn) files and geo-referenced through grid shape-files and Well Known Text (.wkt) files. Software compatible for raster editing, manipulation, and processing of image files (.cit) and their related .dgn, grid shape- files and .wkt files, according to MCD specifications, is a requirement.

The current version and build of the Commercial-off-the-shelf (COTS) software MCD uses for raster editing is cited in the Raster Edit Process section of this Statement of Work. The contractor will be notified within one day of the change of any changes to versioning and build of the MCD raster editing COTS software. COTS software **will not** be provided for off-site work.

Custom software created by MCD for use in the raster editing process will be made available upon request. The contractor will be notified four weeks in advance of a change or upon request of any MCD custom software changes.

Grid shape-files, .cit, .dgn, and .wkt files are file formats used primarily for the storage and transmission of geo- referenced raster nautical charts. A .cit file is a monochrome (black and white) file saved by Intergraph Security, Government & Infrastructure (SG&I) software; may be a scanned image file or an image created with Intergraph design software. Raster .cit files are overlaid upon CAD design (.dgn, version 8, V8i) files, which are 2D/3D drawings created by various construction CAD software, such as MicroStation and Intergraph Interactive Graphics Design System and Bentley Map Enterprise. Well-known text (.wkt) files are text markup language for representing vector geometry objects on a map, spatial reference systems of spatial objects and transformations between spatial reference systems and are used to geo-reference grid shape files to .dgn files. A grid Shape-File (.shp) is a simple, non-topological format for storing the geometric location and attribute information of geographic features. Shape- file format is a geospatial vector data format for geographic information system (GIS) software. Geographic features in a shape-file can be represented by points, lines, or polygons (areas). The workspace containing shape-files may also contain dBASE (.dbf file) tables, which can store additional attributes that can be joined to a shape-file's features. A .dbf file extension represents the dBase database file. The .dbf format is supported by a number of database products. The end product raster file format that can be downloaded from NOAA’s chart locator is commonly known as "BSB", and has a main file extension .kap, though .bsb file extension can also optionally be used. Each of these files consists of two parts:

* + 1. An ASCII header, containing data pertaining to the raster (the most important of which are the color table and the reference points, or ground control points [GCPs]);
    2. Binary data, which uses a patented run-length encoding algorithm to store contiguous pixels efficiently.

The main image data (as raster images) are found in .kap files, with the possibility of multiple images in separate files being part of a multi-panel or multi-page chart. The .bsb file, if present, has additional data pertaining to the chart as a whole. Additional metadata is contained in associated text files, generally stored with .bsb.txt and .kap.txt double extensions, or else names ending in "\_bsb.txt" and "\_kap.txt". The BSB File Format is official raster data that meets the requirements for the Raster Chart Display System (RCDS) mode-of-operation in Electronic Chart Display and Information Systems (ECDIS), as specified in Appendix 7 of the IMO Performance Standards for ECDIS. Note: BSB files are end products created by the Government from contractor deliverables and can be converted to PNG, JPEG, or TIFF file format.

Raster end products - multiple formats, derived from Government-reviewed deliverables

* RNCs distributed electronically in various file formats
* POD paper charts, available for purchase through POD agents
* Raster Chart Tile Sets, which provide the base for a seamless RNC chart server and web service for GIS users

The NCS I System will be capable of receiving and processing raster product file deliverables and will have enough versatility to build nautical products needed by the maritime community to support safe navigation, including raster, and Paper, POD, Custom Chart and chart tile products. Raster editing efforts must conform to special instructions, specifications, and standards contained within:

* The MCD NCM
* The Chart 1 Nautical Chart Symbols, Abbreviations, and Terms publication.

Current copies of the MCD NCM, and the Chart 1 Nautical Chart Symbols, Abbreviations, and Terms publication will be provided to execute proper raster edits within one week upon request. The MCD NCM and the Chart 1 Nautical Chart Symbols, Abbreviations, and Terms publications are “living” digital documents and as such evolve through time. When changes occur to the MCD NCM and the Chart 1 Nautical Chart Symbols, Abbreviations, and Terms publication, updated copies will be provided within one day of the change.

No raster edits will be performed on-site. No Government Furnished Equipment (GFE) or COTS software will be provided for off-site work and deliverables. MCD internal custom software, guidelines, and SOPs will be made available upon request and any changes to them will be provided within one day of a change.

Raster file management, packaging, sending, and receiving of deliverables may be performed on-site by a limited number of 1-4 contractors, as needed, to maintain a consistent and manageable flow of raster edit deliverables to an off-site contract workforce. Deliverables must be received no later than one month after work is assigned, unless otherwise noted for work packages estimated to take more than one month to edit. Raster chart file deliverables will feed into all other raster formats that are processed by the Format and Distribution System (FADS) Branch.

The Contractor shall provide all services necessary to receive, perform raster edits, quality assure, and return deliverables in the exact dimensions and pixel resolution in which the nautical raster chart files were provided for NCS I raster activities.

There is one main task as follows:

**1.** Continually update Nautical Chart raster file symbology for each raster chart panel of the Nautical Chart Suite (approximately 1024 paper (raster) chart main panels and 1116 inset panels). Nautical Chart raster file symbology will be updated through raster editing from feature manipulation engine (FME) transformed shape-files once they become available from the NIS and are assigned to the contractor. The Nautical Chart Suite is a continually evolving repository, undergoing additions, deletions, and cancellations of chart panels through time.

## Activity 1 - NCS I Raster Edits: Continually Update Nautical Chart suite raster file symbology

The Contractor shall provide all services necessary to receive, review, perform edits, and return deliverables in the exact dimensions and pixel resolution in which they were provided. Individual updated feature, line and polygon (area) vector objects will be pulled from the NIS database as shape-files, geo-referenced through .wkt files to the appropriate .dgn file, to be used for editing the appropriate .cit raster product files. Shape-files derived from the NIS will be transformed through a FME. FME is a platform that streamlines the translation of spatial data between geometric and digital formats. It is intended especially for use with GIS, CAD, and raster graphics software. The shape-files that are transformed by FME are then used to edit the appropriate raster product .cit files and used in tandem with .dgn files, according to MCD specifications. The appropriate shape-files, .cit and .dgn files will be provided, when source materials have been reviewed in the NIS. Current MCD workflows for raster editing involve software applications which allow geo-referenced, scale and resolution specific raster editing to individual chart panels to exact MCD specifications and standards using COTS Bentley Map Enterprise V8i (SELECTseries 3) – Version 08.11.09.114 software (Bentley). COTS software **will not** be provided for off-site work. The Bentley software has undergone some in-house application customization to allow the user to apply all raster edits to MCD specifications and **will be** provided for use in Bentley software, upon request. Bentley software is a requirement for nautical chart raster edits to MCD .cit and .dgn files. MCD SOPs, guidelines, instructions for MCD workflows in the use of Bentley software, specifications, and standards are living documentation that evolve and undergo a continual improvement process.

MCD internal custom software, workflows, guidelines, and SOPs will be made available upon request and any changes to them will be provided within one day of a change.

## NCS II

NCS II production will occur on-site. The NCS II production line consists ENCs and ENC derived products. ENCs are vector data sets that support all types of marine navigation. Originally designed for large commercial vessels using a sophisticated navigational computer called an ECDIS, ENCs are now also being used on simpler electronic chart systems and “chart plotters” on many types of ships and by recreational boaters. NOAA ENCs help provide real-time ship positioning, as well as collision and grounding avoidance. NOAA ENCs comply with the International Hydrographic Organization ENC Product Specification. ENCs are produced around the world by many different national hydrographic or charting agencies. NOAA maintains more than 1,250 NOAA ENC datasets over

U.S. coastal waters and the Great Lakes.

## Background Knowledge

ENCs are updated through compilation of source materials upon the ENC dataset, using ESRI ArcMap software. Compilations are additions, deletions and revisions to chart features and attribution derived from source data, applied to the ENC, and synched back into the NIS database. The NIS is a seamless Oracle database of all ENC vector data. Source data is the information that MCD receives on a daily basis, which is analyzed and applied to the charting products. Source data providers are diverse and data is received in multiple and varied formats. The NCS II System is used in the maintenance of NOAA’s current suite of ENCs and ENC products: ENC Online Viewer, and ENC Direct to GIS. The ENC Online Viewer is a seamless display of all NOAA electronic navigational charts using ECDIS symbology. ENC Direct to GIS allows users to display, query, and download all available base editions of NOAA ENC data in a variety of GIS/CAD formats, using web mapping service technology.

Vector products - multiple formats

* ENCs distributed electronically
* ENC Direct to GIS
* ENC Online
* NCS II Chart Templates

The ArcGIS Maritime Solution software, developed by ESRI for Hydrographic and Cartographic Office users, is used to produce ENCs for MCD. MCD has loaded all ENC data into a single, seamless, NIS Database solution, the NCS II and validated the data against International Hydrographic Organization (IHO) standards using sevenCs and dKart software. ENCs are downloadable online in various GIS/CAD formats and viewable through the ENC Online website.

The NCS II system consists of two distinct components, the first is the NIS and the second, the Product Library (PLIB). The NIS is the repository for all Maritime feature data stored in vector format. This repository allows all vector and raster production from a single database solution. The remaining work to be finished before the NCS II system is fully capable to output all products, is to complete the creation of the raster chart template suite. The PLIB is a complete library of products created by the NCS II system. Each product definition contains all of the metadata necessary to produce the product, either ENC or raster, including the product footprint. ENC products are generated directly from the NCS II system by combining the PLIB product definition with the NIS Vector data for that product area. For raster products, a replica geo-database is produced using the PLIB definition and the NIS vector data. Due to the finishing required for the raster product, this replicated geodatabase is maintained for the lifetime of the product. Changes to the vector data in the NIS are periodically replicated (pushed) down to the product database.

Once the data is replicated, a new or updated product is produced from the system.

## Activity 2 - Creation and Maintenance of ArcGIS based Templates for Electronic Navigational Chart cells in the NIS database through application of source data

Contractors shall provide program support to the MCD in building chart templates to support the transition effort from NCS I system to NCS II system. Nautical chart products intended for paper and raster application are created by extracting nautical data from the NIS into individual product file geodatabases (FGDBs) and Map Documents (MXDs) using scale and Area of Interest (AOI) queries. Program support includes all services necessary to analyze, review and process chart templates. The Contractor shall conduct Chart Template feature symbolization, annotation, creation of projection grids, creation of non-NIS features, creation of chart notes and other surround elements, and finishing the Chart Template’s overall page layout in accordance with established SOPs and Task Assistant Manager (TAMs) documentation. Each Chart Template product is to be functionally identical to its corresponding paper chart. The resulting finished Chart Template FGDB and MXD will undergo contractor peer review to measure and correct the chart templates against the existing ENCs and raster paper charts for accuracy, precision and correctness according to the standards set herein and upon passing peer review, delivered to the Government.

NCS II services are required to supplement the MCD nautical charting program existing staff and processes for continual maintenance of the ENC chart suite within the NIS. ENC maintenance will be achieved through source application and compilation to edit versions pulled from the NIS. All application and compilation must conform to the Nautical Chart Manual, IHO S-57 standards and acceptable cartographic practices.

The Contractor shall provide all services necessary to receive, perform compilation maintenance, quality assure and return deliverables for NCS II activities. There are two main tasks as follows:

* 1. Maintenance of ArcGIS based vector files for Electronic Navigational Chart cells in the NIS database through application/compilation of source data
  2. Creation and Maintenance of ArcGIS based Templates for Electronic Navigational Chart cells in the NIS database through application of source data.

## Activity 3 - Maintenance of ArcGIS based vector files for Electronic Navigational Chart cells in the NIS database through application of source data

Contractors will provide program support to the MCD’s NIS sufficient to update and maintain ENC source data. This includes all services necessary to analyze, review, and process source data into the ENC cells in the NIS database according to the NCM and acceptable cartographic practices. ArcGIS Maritime Solution software, developed by ESRI for Hydrographic and Cartographic Office users, produce and maintain MCD’s suite of ENCs. Replication of individual feature objects in the seamless database into product geo-databases using the Product Library is a key function. This system receives and processes source data from various private and Government agencies to build nautical products needed by the maritime community to support safe navigation, including ENC, raster, and Paper as well as producing weekly Critical updates.

## NCS II Source Data

Source data consists of, but are not limited to the following:

* **Blue Prints (BPs)** – Consisting of various formats in analog or digital form from various private or Government agencies and providing data for various types of surveys which may include but are not limited to U.S. Army Corps of Engineers (USACE) channel surveys, private agency drawings for bridges, overhead and submerged pipelines and cables, wharfs, piers, harbor facilities, etc.
* **Letters (Ls)** – Consisting of various formats in analog or digital form from various private or Government agencies (Internal and External) and providing data for various types of land and water information. Letters are typically associated and referenced to other types of data which include but are not limited to, Blue Prints, Letters, Field Exams, Geographic Cells, Hydrographic surveys, and Chart Forwards. Letters typically contain the metadata and analog data to be used in reference and conjunction to other source data for proper compilation. Letter information may include, but not be limited to the following:

USACE Channel Condition Reports (CCRs) and tabulations, authorization of new charts or chart cancellations, MCD chart policy letters, USACE anchorages and basins, overhead and submerged cables and pipelines, bridges, wrecks, boundaries and limit lines, tides, chart forwards, channel legends, platforms, shoals, rocks, obstructions, wrecks, tanks, towers, stacks, buildings, geographic names, fish havens, aquaculture, landmarks, etc.

* **Digital Data (DDs)** – Consisting of various digital formats from various private or Government agencies (Internal and External) and providing data for various types of land and water information. DDs are typically associated and referenced to other types of data which include but are not limited to, Blue Prints, Letters, Field Exams, Geographic Cells, Hydrographic surveys, and Chart Forwards. DDs contain the digital form of the data to be ingested into Bentley Map composite files or the NIS.
* **Field Exam (FEs)** – Consisting of various formats of analog and digital data from various private or Government agencies and providing data for Hydrographic surveys of limited scope. FEs are investigations of specific features, such as obstructions, rocks, and wrecks, or basic hydrographic surveys of limited extent.
* **Hydrographic Survey (Hs) -** Consisting of various formats of analog and digital data from various private or Government agencies and providing data for hydrographic conditions. A Hydrographic Survey is a complete and thorough survey of the seafloor. For charting purposes, a Hydrographic survey must be adequate to supersede all prior surveys of the same area. A Hydrographic survey verifies or disproves the existence of all charted or reported features of significance.
* **W Survey (Ws) -** Consisting of various formats of analog and digital data from various private or Government agencies and providing data for hydrographic conditions. W surveys are outside source surveys that have not been acquired under an official Hydrographic Surveys Division (HSD) project and may be evaluated for use in nautical charting.
* **Geographic Cell (GCs) -** Consisting of various formats of analog and digital data from various private or Government agencies and providing data for topography, including but not limited to, shoreline, low water line, land-water interfaces, man-made features, etc. GCs may also consist of near shore Topobathymetry. Topobathymetric data (“topobathy”) are a merging and rendering of both topography (land elevation) and bathymetry (water depth) to provide a single product useful for nearshore mapping and a variety of other applications.

# Key Personnel

A quantity of two (2) GIS Analyst Level IV personnel are required. The GIS Analyst Level IV labor category is considered Key Personnel. The duties, responsibilities, minimum experience and education are listed below.

Duties/Responsibilities:

The GIS Analyst Level IV works independently and provides technical assistance and guidance on GIS issues and statistical techniques, solve and provide assistance to others on GIS task oriented problems with only a general description of the desired end product, be responsible for all database requirement models, and details within development task, conduct technical reviews of other GIS analyst work when necessary to solve problems or improve functionality, write papers, produce documentation on new procedures developed, develop presentation materials, present projects results to small and large groups, and provide training to others in the use and application of GIS for real world applications. The position will be required to have advanced knowledge of GIS, raster, vector and statistical techniques for analyses, demonstrated ability to solve natural resource related problems with ESRI ARC software products, spatial database engine and/or ArcServer, and will also have knowledge and use of statistical software packages such as S-Plus, R, and ArcGIS.

Minimum Experience/Training: Three (3) years' experience in the application of GIS and statistical techniques to the analysis of natural resource issues.

Minimum Education: Bachelor’s Degree Required. A Master’s Degree or PhD in Natural Resources, Natural Sciences, Landscape Architecture, GIS or related field preferred.

# Ongoing Tasks

## Activity 1 - NCS I - Continually Update Nautical Chart Raster File Symbology

|  |  |
| --- | --- |
| **Task** | **Anticipated Due date** |
| Submission of edited Nautical Chart raster files for each chart panel of each work assignment. Work assignments are derived from NIS continual maintenance in the form of shape-files. | Within twenty (20) business days of Government notification |
| Notify the MCD or Government designated POC for clarification when  an error or inconsistency in raster files or shape-files occurs. | Within two (2) business days of  Contractor Identification |
| Correct all raster edit errors called for by the Government. | Within ten (10) business days of work assignment OR within COR agreed upon delivery schedule |

1. **Deliverables**

**Activity 3 - NCS II - Maintenance of ArcGIS based vector files for Electronic Navigational Chart cells in the NIS database through application of source data**

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliverables -** Updated FGDBs of Checkout Replicas or Edit Versions extracted from the NIS for each chart panel of each type of source application or combination of source applications listed below | **Delivery Date** | **Deliver to** | **Reference** |
| Blue Prints | Within 10 days of assignment or within delivery schedule established by the COR | COR | Section 2, B |
| Letters | Within 10 days of assignment or within delivery schedule established by the COR | COR | Section 2, B |
| Digital Data | Within 10 days of assignment or within delivery schedule established by the COR | COR | Section 2, B |
| Field Exam | Within 10 days of assignment or within delivery schedule established by the COR | COR | Section 2, B |
| Geographic Cell | Within 20 days of assignment or within delivery schedule established by the COR | COR | Section 2, B |
| Hydrographic Survey | Within 10 days of assignment or within delivery schedule established by the COR | COR | Section 2, B |
| W Surveys | Within 10 days of assignment or within delivery schedule established by the COR | COR | Section 2, B |
| Forwards | Within 10 days of assignment or  within delivery schedule established by the COR | COR | Section 2, B |

**Activity 2 - NCS II - Creation and Maintenance of ArcGIS based Templates for Electronic Navigational Chart cells in the NIS database through application of source data**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Deliverables -** NCS II Template for each chart. The template shall follow the MCD SOPs for creating NCS II chart templates and be baselined against the existing RNC | **Estimated Number of**  **Templates per Year** | **Delivery Date** | **Deliver to** | **Reference** |
| Template MXDs and Template GDBs for each chart panel requested | 10 | Within 25 days of assignment or within an establish delivery schedule | COR | Section 2, B |

1. **Service Quality and Performance Standards**

All services shall be provided at a level of quality that consistently meets the requirements set forth herein. Any and all interaction with the public must be coordinated and approved by the COR. Under no circumstance may the contractor disseminate information from or about the office, or otherwise cause information to be published that has not been previously approved in writing for dissemination by the COR. The contractor shall not present itself in any way as a representative of the office or the Government. The performance standards associated with the areas of responsibility are included in the description below and the following publications:

## Quality

|  |  |
| --- | --- |
| **Publication** | **Location** |
| NOS/OCS/MCD Nautical Chart Manuals Charting Policy | Provided as attachments. |
| Chart 1 Nautical Chart Symbols, Abbreviations, and Terms publication | https://nauticalcharts.noaa.gov/publications/docs/us- chart-1/ChartNo1.pdf |
| International Hydrographic Organization Standard S- 57, Transfer Standard for Digital Hydrographic Data, Edition 3.0 including Appendix B.1 | https://[www.iho.int/srv1/index.php?option=com\_conte](http://www.iho.int/srv1/index.php?option=com_conte) nt&view=article&id=448&Itemid=345&lang=en |
| NCS II SOP for Creating Templates | Continually maintained version available from Office of Coast Survey |

* 1. **Performance Standards NCS I and NCS II**

The contractor shall have ten business days from the date the Government assigns a raster edit or source document application to the contractor to complete and submit to the Government for review. The contractor shall have five business days (the first five within the allotted ten business days) to notify the Government if the contractor feels a particular source document application or raster edit will take longer than the specified ten days. In such cases, the Government will assess the level of effort necessary to complete the source application and notify the contractor of the new due date to complete the source application.

Performance Requirement: Deliverables shall be error free 98% of the time Method of Surveillance: 100% inspection

## NCS II

Critical Source Document

The Government may also have time-sensitive critical source document application that will need to be applied sooner than the stated delivery date included in the deliverable date. In such cases, the Government will notify the contractor that the time-sensitive source document application is required to be completed and submitted in two (2) business days. The Government anticipates approximately 30 time sensitive critical source document applications per year.

Performance Requirement: Deliverables shall be error free 100% of the time Method of Surveillance: 100% inspection

## NCS II Chart Templates

The contractor shall have 25 business days from the date the Government assigns a typical NCS II chart template for compilation and submit the NCS II template for Government review for activity 2. Atypical chart templates that may require more than 25 business days to complete and submit for review, may undergo a more thorough examination for the establishment of delivery dates which may require further adjustment. The contractor shall have five (5) business days (the first five within the allotted 25 business days) to notify the Government if the contractor estimates a particular source document application will take longer than the specified 25 business days or established delivery date. In such cases, the Government will re-assess the level of effort necessary to complete the source application and notify the contractor of the new due date to complete and submit for Government review.

All source delivery dates will be established and be managed by the Geo-Referenced Source Registry databases (GREG). All source document application errors, returns, due date change requests, and any delays in submitting source document applications for review will be tracked by the Government on a monthly basis through the use of GREG. GREG will be used in conjunction with monthly progress reports to monitor and assess contract performance.

Performance Requirement: Deliverables shall be error free 98% of the time Method of Surveillance: 100% inspection

Errors to contractor NCS I raster edits, NCS II source document application and chart templates

The criteria the Government will use to define errors in contractor raster edits, source applications and chart templates are as follows: Unacceptable due to critical correction errors; unacceptable due to non-critical correction errors; unacceptable due to both critical and non-critical correction errors. A critical correction error will be defined in three ways:

* 1. The contractor submits a source document application and does not write a Notice to Mariner report and the Government identifies that a Notice to Mariner report should have been generated by the contractor.
  2. The contractor submits a source document application, which required a Notice to Mariner report and the Government identifies an error with the Notice to Mariner report generated by the contractor.
  3. The Government identifies a critical error in the contractor source document application that requires a Notice to Mariner report to be generated if the chart were to be published.

The Contractor shall have two (2) business days to correct all source document application errors called for by the Government. If the contractor feels the corrections called for by the Government will take longer than two (2) days because of difficulty or the amount of corrections precludes the source application from being completed within the two-day standard timeframe, the contractor shall forward an extension request to the Government for approval through the use of the GREG.

# Monthly Progress Report

Each invoice shall be accompanied by a progress report that clearly summarizes the following for NCS I, NCS II and chart template activities:

* 1. Activities and accomplishments during billing period
  2. Anticipated activities/accomplishments during next 30 days
  3. An on-going list of deliverables required and submitted (as set forth in this PWS).

Each report shall separately identify each activity and project including performance objectives, and accomplishments. The report may include additional information, including findings and recommendations that would assist the Government in evaluating progress under this contract.

Methodology the Government will use to apply the above criteria to the monthly invoices

All raster edits, source document applications, and chart templates will be reviewed to determine adherence to the standards listed herein. The contractor shall be required to comply with these standards and specifications submitted to MCD for review.

NCS I raster edits, NCS II source applications and chart templates:

The contractor is responsible for identifying any NCS I or NCS II system, raster files, source applications, and chart templates that have inconsistencies/problems or any unresolved conflicts not covered by the Nautical Chart Manual, Chart 1, or any references listed in section 3. When a contractor identifies an error or inconsistency in the shape-file or source application, they are required to notify the MCD or Government designated Point of Contact (POC) for clarification within five (5) business days. The MCD reviewer or POC may in turn forward this issue to the Quality Assurance Standards and Plans Branch where a decision will be reached. The raster edit will be put on hold until further documentation is generated to address the issue identified by the contractor.

The Government will provide the contractor documentation citing the reasons for any correction errors called for in the contractor’s raster edits and source document applications by way of reference to the relevant nautical charting standards.

The Government will review all raster edits, source applications and chart templates submitted by the contractor, which require critical corrections within 15 business days. The Government will review all raster edits, source applications and chart templates submitted by the contractor which do not require critical corrections (non-critical) within 20 business days, unless the size and/or difficulty requires a non-standard amount of time for review such as some geographic cells and hydrographic survey edits.

All raster edits, source document application and chart template errors returned to the contractor for corrections as well as any delays in submitting source document application for review will be tracked by the Government on a monthly basis and feedback will be provided to the contractor.

# Government Supplied Space / Supplies / Property

### NCS I Activities:

The Government will **Not** provide any GFE for offsite facilities.

### NCS II Activities:

The Government will provide limited onsite work space with assigned workstations with access to PCs and telephones, standard office supplies and equipment. Access to Government network and information will follow NOAA security policy for CAC card and 2-factor authentication. The Contractor is required to be located at OCS Headquarters, contractor personnel will be granted access to the space, supplies, and equipment identified in this PWS on weekdays, Monday through Friday except for Government-observed holidays or other official leave days (e.g., due to inclement weather, Presidential inaugurations, etc.).

# Office Access and Hours of Operation

OCS office hours are 6:00am to 6:30pm Monday through Friday. The contractor is expected to maintain an adequate workforce for the uninterrupted performance of all tasks defined within this PWS when the Government facility is not closed for the above reasons.

# Security

The Assessment and Authorization (A&A) requirements of Clause 48 CFR 1352.239-72 do not apply, and a Security Accreditation Package is not required.

OCS data management policy requires that any contract work performed off-site will be performed on copies of the OCS data which has been determined to be “public” data. OCS always maintains the authoritative (master) version of all data and information. All deliverables undergo extensive quality assurance (automated and manual reviews) before being incorporated into production systems. Any requested tasks performed on actual authoritative data will be performed on-site. When deliverables are electronically transmitted, they must be conveyed through government issued VPN accounts and government furnished equipment, which is currently covered by an existing government Assessment and Accreditation (A&A) package, NOAA6501 or through secure transmission such as Secure FTE site or DOC Accellion.

The Contractor shall provide a description of how they secure their contractor owned equipment being used for this acquisition in order for the government to determine potential contractor’s IT security risk to the government. An IT Security Questionnaire will be utilized to assist the contractor and assigned Information System Security Officer (ISSO) discussions and documentation of the contractor’s IT security posture. The IT Security Questionnaire was developed following National Institute of Standards and Technology (NIST) Special Publications (SP) 800-53 Revision 4, “Assessing Security and Privacy Controls in Federal Information Systems and Organizations: Building Effective Assessment Plans”. The government shall evaluate the contractor’s posture and determine the potential contractor’s IT security risk to the Government. If the Government determines the IT Security risk to be acceptable, the Authorizing Official will document their acceptance in a risk acceptance memo. The risk acceptance memo will be maintained by the ISSO and would be available upon request.

The contractor is required to meet the DOC IT Security Program Policy (ITSPP) and Commerce Information Technology Requirements (CITRs) (available at: https://connection.commerce.gov/policy/20140528/it-security- program-policy-and-commerceinformation-technology-requirements).

The government will provide the necessary computer equipment and information to perform this contract for on-site work performed. The contractor must request the additional requirements from the Contracting Officer Representative (COR) when issued GFE requires additional hardware or software. The Contractor is required to ensure the GFE is connected to either NOS internal networks or the Internet, at a minimum of once every two weeks and be operated for approximately 2 hours while connected to allow for the Government to perform the necessary configuration management and vulnerability management of the GFE.

It is a mandatory requirement for every NOAA IT user (government, contractor, associate, or temporary personnel) to complete the NOAA Information Technology Security Awareness Course every year. Temporary personnel include visitors, guest workers, etc. who plan to work at a NOAA site and use NOAA IT resources. Both new and temporary employees must take the course within three days after initial issuance of NOAA IT equipment and annually.

The contractor must consider IT Security controls throughout the lifecycle of this contract as outlined in NIST Special Publication 800-64 (https://ocio.commerce.gov/) and established OCS IT Security policy, procedures, configuration management and SDLC documentation.

Disclosure of the information/data, in whole or in part, by the contractor can only be made after the contractor receives prior written approval from the Contracting Officer. Whenever the contractor is uncertain with regard to the proper handling of information/data under the contract, the contractor shall obtain a written determination from the Contracting Officer. The contractor shall not present itself in any way as a representative of the Office of Coast Survey or the Government.

External Cloud services are NOT authorized in support of this contract.

All electronic provided information by the contractor must undergo malicious software scanning using a commercial anti-virus and anti-spyware software to ensure the information is free of known malicious software. The contractor must work with the COR and the OCS ISSO prior to sending the information to establish a secure method for transfer. One option could be a file encrypted with a password using a product like WinZip. The contractor must encrypt any sensitive information that will be sent electronically (i.e., email), sensitive information includes but not limited to:

* All information describing the implementation, configuration, settings, etc. for solution being developed,
* The source code and database schema,
* The vulnerability scanning, secure baselines scanning, mitigation results,
* The secure baseline deviations,
* Internet Protocol, subnet mask and similar identification.

The contractor is required to comply with the Department of Commerce’s Commerce Acquisition Manual’s (CAM) 1337.70 Personnel Security Requirements ([http://oam.eas.commerce.gov/docs/CAM1337.70%28Security%29.pdf).](http://oam.eas.commerce.gov/docs/CAM1337.70%28Security%29.pdf))

In compliance with instructions contained in Homeland Security Presidential Directive 12 (HSPD-12), the contractor shall comply with Department of Commerce Personal Identity Verification (PIV) procedures when the contractor requires physical access to MCD facilities and/or access to controlled information systems. Completion of a National Agency Check with Inquiries (NACI) with a favorable suitability determination, and completion of two security training modules is required for access to all MCD facilities.

MCD retains the right to require removal of contractor personnel, regardless of prior clearance or adjudication status, whose actions, while assigned to this contract, conflict with the interests of the Government.

The Contractor is required to meet the DOC IT Security Program Policy & Minimum Implementation Standards (https://ocio.commerce.gov/) and established OCS IT Security policy, procedures, configuration management and SDLC documentation.

All deliverables undergo extensive quality assurance before being incorporated into production systems.

Cyber Security

The contractor must implement cyber security and quality assurance controls, similar to NOAA's federal workforce when processing offsite data for the protection of the data processed and delivered as documented in this PWS.

At a minimum, the contractor shall implement the following cyber security controls:

1. Implement regular vulnerability scanning and remediation of computers, software, and devices utilized in the acquisition process to reduce the risk of vulnerabilities.
2. Maintain secure configuration of computers and applications to remove unnecessary software, ports, protocols and services, which could be subject to compromise.
3. Implement good physical security practices in the handling of external devices or laptops utilized in the acquisition process.
4. Perform Quality assurance on the deliverable to confirm accuracy of the data and the drive is free from malicious code.
5. Notify OCS of any indication or actual security compromise of resources utilized in the contractor's acquisition process.

# Government Designated Point of Contact

The Government’s designated POC for this requirement shall be: 1315 East West Highway Sta. 7502

Silver Spring, MD 20910-3282