

NCIA Request for Information (RFI)



**GLOBAL SEAMLESS VECTOR BASEMAP DATA
RFI-191620-GSVBD**



NCIA/ACQ/2026/07650
Thursday, 27 August 2026

NCIA Request for Information (RFI)

To: Industry Partners

Subject: GLOBAL SEAMLESS VECTOR BASEMAP DATA
RFI-191620-GSVBD

1. The NATO Communications and Information Agency (NCIA) is conducting market research to identify qualified vendors and gather input on potential solutions to support the upcoming acquisition for Global Seamless Vector Basemap Data. To that end, we are issuing the attached Request for Information (RFI) **RFI-191620-GSVBD** to solicit feedback from capable and interested industry partners.
2. This RFI is issued for planning purposes only and is not a request for bids. It is part of NCIA's effort to ensure it has a clear understanding of the marketplace, available capabilities, and potential acquisition strategies.
3. We value your insight and invite you to:
 - a. Share relevant corporate capabilities and experience;
 - b. Review and comment on Annexe A and on our draft Statement of Work (SOW) (Annex B) with a view in providing recommendations for improving performance outcomes, competition, and efficiency; and identifying any risks or concerns that should be considered during planning.
4. Submission instructions and additional details can be found in the enclosure to this RFI.
5. Only companies from a NATO member country can participate in or respond to this RFI (https://www.nato.int/cps/en/natohq/nato_countries.htm).
6. Should you have any questions or need clarification, please contact Emira Kapetanovic at RFI-191620-GSVBD@ncia.nato.int
7. We thank you in advance for your time and input, and we look forward to engaging with you as we shape this potential acquisition.

For the Chief of Acquisition:

//Original Signed 27 August 2026//

Emira Kapetanovic
Principal Contracting Assistant

Enclosure:

- Request for Information with Annexes A and B
- Distribution List

Distribution List

1. NATO Delegation (Attn: Infrastructure Adviser)

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2. All NATEXs

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REQUEST FOR INFORMATION

A. Introduction

1. The NATO Communications and Information Agency (NCIA) is conducting market research to identify potential sources and gather information regarding industry capabilities to identify the availability and technical capability of all qualified NATO nation businesses that can provide the services described in this announcement. This Request for Information (RFI) is issued solely for informational purposes and does not constitute a Request for Proposal (RFP), Request for Quotation (RFQ), or invitation for bid.

B. Purpose

1. The purpose of this RFI is to obtain input from industry to help inform the NCIA's acquisition planning and align a drafted Statement of Work (SOW) (Annex B). Responses to this RFI will assist in refining requirements, identifying capabilities, and shaping the strategy for any future solicitation.

C. Background

1. The Joint Intelligence, Surveillance and Reconnaissance (JISR) Centre within NCIA provides full life cycle support of all assigned JISR services within NATO. In this context, the Geospatial, Meteorology and Oceanography (GeoMetOc) Branch within JISR is responsible for the Core Geographic Information System (CoreGIS) Application Service that provides both ACO customers as well as NATO Nations with a suite of geospatial data, services and products that ensure all phases of military operations are conducted on the same geospatial reference. The CoreGIS Application Service is Commercial-off-the-Shelf (COTS) based and uses the Esri ArcGIS software product suite in a NATO-specific configuration.
2. In order to support effective NATO planning and North Atlantic Council (NAC) approved activities, geospatial information (GI) of various types, such as imagery, elevation and topographic and thematic maps are required among others.
3. An upcoming Procurement Opportunity will aim at acquiring a Global Seamless Geospatial Vector Basemap dataset to NATO specifications ([NGIF](#)) to serve as a foundation base for any additional authoritative national data and to directly support NATO Operations, Missions or other Activities. Licensing shall cover perpetual use and unlimited copies within the NATO enterprise and, in addition, NATO Nations, non-NATO Nations and all other NATO supporting entities participating to North Atlantic Council (NAC) approved initiatives.

It shall support the general geospatial use cases:

- Global web-based map experience
- Map production to rapid mapping quality levels
- Generic geospatial analysis
- Global commercial-grade routing experience and network analysis
- Geocoding and search services on a global scale

In this context, Overture Maps data has been identified to add significant value to NATO's mission. However, NCIA is aware of concerns regarding completeness, seamlessness, reliability, trustworthiness and quality of open data.

4. Therefore, this request is specifically looking at additional geospatial data to augment the value of Overture Maps data through conflation in light of the geospatial use cases, together with an estimate for required processing time and involved cost.

D. Submission Instructions

1. Interested parties are invited to respond in accordance with the instructions below:
 - a. Submit responses via the email address in section H no later than **12:00 hours Central European Time (CET)** on Thursday **10 September 2026**.
 - b. Responses should be submitted in PDF or Word format and must not exceed **15 pages**, including:
 - i. Responses to [Annex A](#) and comments on [Annex B](#), excluding:
 - i. Cover page
 - ii. Company brochures or product literature (if included)
 - iii. Attachments, such as past performance references
 - c. Use the following subject line for submission
 - i. "Response to RFI [RFI Number] – [Company Name]"
 - d. All responses should address the items listed in [Annex A](#) – Requested Information.
 - e. Respondents are also encouraged to review and comment on the draft requirements in [Annex B](#) and suggest any improvements.

E. Industry Engagement (Optional)

1. The Agency may request a demonstration of the described solution. Respondents will be contacted if such a demonstration is desirable to make further arrangements. Respondents are requested to await further instructions after their submissions and are requested not to contact directly any NCI Agency staff other than the POC identified above in Paragraph H.
2. Interactive demonstration, capabilities, functionalities will be considered as indicative and informational only and will not be considered as binding on the participant or on NATO within the context of any future acquisition.
3. If requested, companies should be willing to provide this demo free of charge to NCI Agency.

F. Disclaimer

1. This RFI is for planning and informational purposes only and shall not be construed as a solicitation or obligation on the part of the NCIA. The NCIA does not intend to award a contract based on responses to this RFI. Respondents are solely responsible for all costs incurred in responding to this RFI. The NCIA will consider and analyse all

information received from this RFI and may use these findings to develop a future solicitation. The NCIA will consider all responses as confidential commercial information and will protect it as such.

2. NCIA reserves the right, at any time, to cancel this informal market survey, partially or in its entirety. No legal liability on the part of NCIA for payment of any sort shall arise and in no event will a cause of action lie with any prospective participant for the recovery of any costs incurred in connection with the preparation of documentation or participation in response hereto. All effort initiated or undertaken by prospective informal market survey participants shall be done considering and accepting this fact.

G. Use of Information Provided through Responses

1. Confidentiality of Responses

The NCIA may incorporate industry comments and responses, in part or in whole, into a future release of a solicitation. Should respondents include proprietary data in their responses that they do not wish to be disclosed to the public for any purpose, or used by NCIA (except for internal evaluation purposes), they must:

a. Mark the title page with the following legend:

This document includes data that shall not be disclosed outside NATO and shall not be duplicated, used, or disclosed – in whole or in part – for any purpose other than for NCIA internal evaluation purposes, unless otherwise expressly authorised by [insert company name]. This restriction does not limit the NCIA's right to use information contained in this data without restriction if it is obtained from another source. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]

b. Mark each sheet of data it wishes to restrict with the following legend:

Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this document.

H. RFI Point of Contact

1. Emira Kapetanovic
2. RFI-191620-GSVBD@ncia.nato.int

Annex A – Requested Information

1. Respondents are encouraged to provide the following information (a.-d.) in their response:

a. Company Information

- i. Legal Business Name
- ii. Address
- iii. Website
- iv. Primary Point of Contact
- v. Email address

b. Technical Capability

- i. Summary of relevant capabilities and past performance

c. Feedback and Recommendations

- i. **Inquiry on comments and concerns with draft SOW, including any assumptions upon which they are based.**

Question 1:

Do you have any comments or concerns on the draft SOW (Annex B) and its requirements?

- ii. **Rough Order Magnitude (ROM) for price and time of data processing of all deliverables of draft SOW (Annex B), including any assumptions upon which they are based**

Question 2:

Please provide an estimate of processing time and price for delivering the conflated dataset and all products (2.1) of the draft SOW in Annex B, ideally split by deliverables:

iii. Innovations or alternatives

Question 3:

Please state potential innovative approaches, data and processes to achieve the intended goal of a global seamless vector datasets supporting the general geospatial use cases superior to commonly available Overture Maps data, specifically for network analysis and geocoding:

d. Questions or Concerns

- i. Risks, concerns or barriers
- ii. Suggestions for risk mitigation or enhancing competition

Annex B – Draft Statement of Work (SOW)

Note: This is a DRAFT and subject to change. The NCIA is seeking industry feedback.



DRAFT STATEMENT OF WORK

PROVISION OF GLOBAL SEAMLESS VECTOR BASEMAP DATA

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SECTION 1 INTRODUCTION

1.1. Background

The NATO Communications and Information Agency (NCIA) is dedicated to acquiring, deploying, and defending communication systems for NATO's political decision-makers and Commands. It operates on the frontlines against cyber-attacks, collaborating closely with governments and industry to prevent future debilitating attacks. NCIA plays a crucial role in maintaining NATO's technological edge and ensuring the collective defence and crisis management capabilities of the Alliance.

NCIA supports the NATO Enterprise with system architecture and engineering as well as scientific and technical studies, advice and support.

Within NCIA, the Joint Intelligence, Surveillance and Reconnaissance Service Centre (JISRC)/GeoMetOc Services Branch maintains all life cycle aspects of the NATO Bi-SC AIS Core Geographic Services (CoreGIS) capability, which supports all NATO Command and Control (C2) and Functional Area Services (FASs) and provides comprehensive GeoMetOc Services to the NATO Military Authorities (NMA), NATO operations and Nations.

CoreGIS is based on Esri's ArcGIS technology in a NATO specific configuration and consists of system architecture, engineering and maintenance service and is complemented by Geospatial Information (GI) production and management. The relevant GI provides authoritative as well as specialized data specific to analysts of communities of interest (COI's) across the NATO enterprise and NATO Nations.

Within this context, SHAPE has identified a requirement of high operational importance for a Global Seamless Geospatial Vector Basemap dataset to NATO specifications. It is to serve as a foundation base for any additional authoritative national data and directly supports NATO Operations, Missions or other Activities.

1.2. Purpose

1.2.1. Geospatial Information (GI) serves a large range of use cases within NATO's geospatial community and those depending on its services. It is essential for geospatial analysis and forms a contextual backdrop for Situational Awareness (SA) of most of NATO's Functional Areas (FAs) and their systems. In order to support effective NATO planning and North Atlantic Council (NAC) approved activities, GI of various types, such as imagery, elevation and topographic and thematic maps are required among others. While many of them are available to satisfactory degree, a seamless global vector dataset containing the relevant topographic features to stated quality is required to meet new emerging needs. The sheer data volume poses a challenge for national geospatial offices to provide globally. Open data, mainly from OpenStreetMap has been used to various degrees but restrictions on useability, reliability and quality remain. Meanwhile the relevant industry advances on vetted and consolidated datasets which add value to NATO's mission, in particular using the wealth of information from the Overture Maps Foundation, enhanced and complemented with relevant additional data and processed by GIS data providers to required formats.

1.2.2. This solicitation aims at providing a consistent set of GI to NATO specifications to act as geospatial foundation data for NATO's mission across the NATO enterprise and NATO Nations.

1.3. Scope of Work

1.3.1. This Statement of Work (SOW) is set to acquire a global seamless vector dataset tailored to NATO's requirements using Overture Maps and other relevant Source Datasets, including metadata, completed with derived datasets and supporting files.

The following sections outline the specific requirements of the work, formally endorsed by the sponsor of the project, SHAPE J2 GEOMETOC Branch.

1.3.2. The work includes provision of a data package consisting of geospatial datasets, related files and documents. The geospatial data shall be the result of conflation of several data sources including Overture Maps as the conflation base, purchaser-furnished as well as contractor-furnished value-adding data to professional and documented processes. Supporting files shall be produced and subsequent datasets shall be derived from it. Metadata shall complete the package.

1.4. Expected Outcome

A CoreGIS compatible GI package shall support the following general geospatial use cases to the stated technical specifications:

1.4.1. Global web-based map experience

1.4.2. Map production to operational rapid mapping quality standards

1.4.3. General geospatial analysis

1.4.4. Global commercial-grade routing experience and network analysis

1.4.5. Geocoding and search services on a global scale

The Purchaser acknowledges that geospatial data is inherently a temporal, generalized and abstracted representation of reality and cannot be expected to be entirely accurate or up to date at all times, particularly if datasets were originally produced for a specific purpose while user requirements evolve. In addition, geospatial data thrives from updates, as features and political situations change over time and feedback from the user community help datasets improve.

The aim is therefore to acquire an initial solution that adds relevant value compared to available datasets in support of the general geospatial use cases (1.4) and request updates to stated improvements and modifications as needed.

Instead of integrating open data directly into NATO's GI holdings, the Purchaser relies on the measurable value added through the conflation of Overture Maps Data with Contractor-provided datasets. This additional value forms an integral part of the evaluation.

SECTION 2 DATA REQUIREMENTS

2.1. Package specifications

The data package shall consist of several products as listed below.

The core product of the package is the Base Vector Dataset following the NATO Geospatial Information Framework (NGIF), which shall be a result of professional and documented geospatial conflation of various Source Datasets.

The Source Datasets shall contain authoritative datasets provided by NATO, contractor-furnished data contributing relevant added value, and Overture Maps data. As alternative to Overture Maps data, other datasets may be proposed if bidders can document equal or superior quality of these datasets in comparison to Overture Maps data in all key aspects.

The Base Vector Dataset shall be used for all products of the package below, forming the deliverables:

2.1.1. The Base Vector Dataset separated into one vector database for each of the defined scales (2.8.1)

2.1.2. Defined Cartographic Representation Style files

2.1.3. Raster cache datasets consistent with the Base Vector Dataset and Defined Styles

2.1.4. Vector tiles dataset consistent with the Base Vector Dataset and Defined Styles

2.1.5. Translation tables of source data to NGIF

2.1.6. Supporting data including Metadata

2.1.7. Network Dataset

2.1.8. Locator files to support search and geocoding

The products shall conform to all specifications hereafter

2.2. Detailed Base Vector Dataset product specifications

2.2.1. The Base Vector Dataset shall be seamless across the entire dataset in support of the general geospatial use cases and consist of current, reliable and comprehensive global geospatial vector data resulting from consolidation, conflation and harmonization to documented quality control processes. Connectivity, density, precision, quality, attribution and other parameters shall be integrated and harmonized as supported by the Source Datasets (2.1) to result in a dataset superior to the degree established by the Overture Foundation dataset.

2.2.2. Themes

The Base Vector Dataset shall be produced as a set of scale-dependent databases with one Esri File Geodatabase (FGDB) for each of the defined scales (2.8.1). The FGDBs shall be composed of individual Feature Classes per theme, where the Base scale shall include all themes and features, while subsequent scales shall only use those features required for each defined scale (2.8.1), generalized as per defined styling and simplified to professional cartographic standards, resulting in a coherent dataset across scales. The Base Vector Dataset shall include all necessary information as per the Source Datasets and support the general geospatial use cases (1.4) containing information of at least the following general themes:

- Infrastructure including features on power, critical infrastructure, military, leisure/sports, airports, seaports and amenities
- Sea/Land depiction

- Hydrographic features, maritime and inland
- Buildings, built-up areas and places/settlements categorised by size and importance. A capitals layers shall incorporate designated capital datasets to be provided by the Purchaser
- Commercial entities, with industry and businesses including the hospitality sector
- Social, cultural and arts features including religion, education, healthcare, historic sites, public services etc.
- Administrative boundaries of multiple administrative levels:

The administrative boundaries layers shall be the result of conflation of the designated boundary datasets for international borders and disputed areas provided by the Purchaser and the remaining Source Datasets. Conflation shall use the dataset with higher geographic location accuracy, where differences are due to scale or generalization. Where no administrative boundary exists in the remaining Source Datasets but the border follows clearly a geographic feature (e.g. lake shores, rivers), then the geometry of these features shall be used. Where no border or existing feature can be followed, the geometry of the purchaser provided dataset shall be used. All data shall always use and prioritize all Purchaser provided attribution and spelling for relevant names.

Topological consistency within the layer and with related layers shall be ensured across all regions and throughout administrative levels, with no overlap or gaps, together with a clear parent-child relationship between administrative levels.

The dataset shall include all administrative boundary levels as per Source Datasets.

All international boundaries shall reflect terrestrial boundaries and align with coastlines where relevant.

The dataset shall include as additional layer boundaries extended to maritime limits, including territorial seas, contiguous zones and Exclusive Economic Zones (EEZ) as available from the Source Datasets.

All administrative boundaries shall be provided in two topologically consistent and aligned feature types:

- as polygons for area representation; and
- lines for boundary delineation
- Addresses, postal information, administrative reference features and country names in relevant ISO 3166 [Ref. 012] codes to support geocoding and reverse geocoding
- Localities of interest, geologic and geomorphologic features
- Land use and land cover including trees, embankments and any other relevant information for cross-country mobility analysis
- Transportation including roads, railway, ferry lines, barriers, public transport facilities, vehicle restrictions, bridges, tunnels and any other route planning relevant information to serve as a basis for a continuous, global scale network

The themes shall be supplied in the adequate feature type(s) (Point AND/OR Line AND/OR Polygon) as available from the Source Datasets and necessary to fulfil the required styles, with all features provided as correct geometries.

Key attribute fields used for symbolization, labelling or in another context shall be indexed.

The dataset shall meet minimum requirements for geometric and structural consistency within and between layers to the level of the Source Datasets and in support of the general geospatial use cases (1.4).

2.2.3. Attribution

Attribution of data shall contain as a minimum a unique feature identifier, a source data identifier, name, type, geometry type and all information in support of the general geospatial

use cases (1.4), and specifically cover the following aspects populated to the degree provided by the Source Datasets to act as input for the relevant NGIF schema:

- All themes to include lineage, product version and related metadata incorporated on feature level
- Buildings to include height
- Land use and land cover each to include at least 10 major categories
- Mountain peaks to include elevation in meters
- Religion to include type of religion
- Administrative areas to include administrative level, type, alpha-2 and alpha-3 country and principal subdivision codes following ISO 3166 [Ref. 012], relevant units (speed, measure, currency, etc.), format (house number structure, etc.) and other indicators, e.g. driving side, language codes, population, etc.
- Barriers to include type and height
- Populated places to include information on population, capitals and at least 4 categories following importance and size
- Power to include volume, voltage, frequency and cables
- Natural and man-made inland waters to include information on permanence and information related to impact to transportation use
- All layers relevant for route analysis shall include directionality, speed limits, typical speed by time, width, height, limitations, restrictions and level connectivity for multilevel networks
- Railway layers shall include gauge, power, frequency and voltage, type of service, tunnel, bridge, and speed
- Road layers shall include lanes, toll, width, height, weight, surface, status, vehicle restrictions, tunnel, bridge, and speed and any other attribution relevant to network analysis
- Classification of roads shall be at least into 5 categories following importance
- Units shall prefer the metric system. For alternative units, all information shall be provided to support the geospatial use cases in the CoreGIS environment
- All routing and geolocation relevant data shall include the relevant ISO country codes

2.2.4. Data Model

The Base Vector Dataset shall be the result of the transformation of the conflated Source Datasets into the NGIF schema [Ref. 002] using the purchaser-furnished Defence Geospatial Information Model (DGIM) as reference.

If the Source Dataset is not natively in NGIF data model, translation tables from source model shall be provided.

Additional attribution of the source dataset (Identifier, Global Entity Reference System etc.) shall be incorporated into the vector database for completeness and, depending the nature of the attribute, maintain a link of the data to its source as supported by the Source Dataset. Empty feature classes or attribute columns shall not exist.

2.3. Detailed Style Dataset product specifications

2.3.1. Main Style:

The Main Style shall be built for the Base Vector Dataset. Dedicated styles by scale shall be provided for the full range of supported scales and include specifically the Defined Scales (2.8.1) and all scales defined in DGIWG 130, Web Symbology [Ref. 003]. One map shall

contain all styles and each style shall be contained within one group in the style file with appropriate scale dependency applied. Styles for smaller scales shall be derived systematically from the base scale through generalization, selection and other professional cartographic methods, resulting in a seamless visualisation throughout scales.

Styling for the defined scales (2.8.1) shall follow DGIWG 130, Web Symbology [Ref. 003] and be applied to the relevant FGDB per scale (2.1.1) using symbology of the nearest smaller level (nearest larger scale).

Styling outside defined scales (2.8.1) shall be provided for all scales defined in DGIWG 130, Web Symbology [Ref. 003] and follow the therein described symbology, using the relevant FGDB of the nearest larger scale (2.1.1). The styling for scales larger than the base scale shall use the FGDB of the base scale.

Labelling shall follow:

- in general, the [Topographic Map](#) of ArcGIS Living Atlas of the World for label styles per level, including font, positioning, colour, placement, feature following (rivers, boundaries, mountain chains, etc.), orientation, density and all other components of the styling, together with defined label conflict rules and contractor proposed improvements
- DGIWG 130, Web Symbology for selection of features to be labelled only.

2.3.2. General Derived styles:

Several styles shall be derived from the main style specification and at the same scales to ensure consistency across themes.

The derived styles for the Base Vector Dataset, raster tiles and vector tiles shall include:

2.3.2.1. Terrain Style, consisting of the Main Style and in addition, comparable to the styling of the [Environment Map](#) of ArcGIS Living Atlas of the World:

- a hillshading effect using elevation data to the minimum quality of Shuttle Radar Topography Mission Global 1 Arc-Second ([SRTM-GL1](#)) data for elevation and General Bathymetric Chart of the Oceans ([GEBCO](#)) 2026 Grid data for bathymetry. (Not necessarily required for vector tiles)
- contour lines including labels using elevation data to the minimum quality of SRTM-GL1 data for elevation

2.3.2.2. Simple Bright Style, showing only Land/Sea, political boundaries, hydrographic features, capitals and populated places. Labels for political entities (centered), populated places, hydrographic features (centered for polygons, line-following for linear features) following style [Human Geography Map](#) of ArcGIS Living Atlas of the World.

2.3.2.3. Simple Dark Style, showing only Land/Sea, political boundaries, hydrographic features, capitals and populated places. Labels for political entities (centered), populated places, hydrographic features (centered for polygons, line-following for linear features) following style [Human Geography Dark Map](#) of ArcGIS Living Atlas of the World.

2.3.3. Additional Derived Styles:

Several additional styles shall be derived from the main style specification at the same scales to ensure consistency across themes.

The Additional Derived Styles shall be produced for the Base Vector Dataset and vector tiles and include in addition:

2.3.3.1. Hybrid Style ready to be superimposed over imagery, showing only political boundaries, transportation, capitals and populated places. Labels for political entities (centered), populated places, transportation (line-following for linear features) following style [Imagery Hybrid](#) of ArcGIS Living Atlas of the World.

2.3.3.2. Transportation style, select features and labels as shown in [Streets](#) of ArcGIS Living Atlas of the World.

2.3.3.3. Political style, select features and labels shown in [Charted Territory Map](#) of ArcGIS Living Atlas of the World.

2.4. Detailed Network Dataset product specifications

To support the routing, network analysis and real-world navigation requirements, the network shall provide continuous, topologically valid connectivity within and between supported transportation modes (road, rail, ferry, etc.) as per real-world conditions: Valid intersections, node connectivity, grade-separated crossings, relative level connectivity, bridges, tunnels, ferries, railway and other network relationships shall be represented in accordance with their physical characteristics and as provided by the [Source Datasets](#).

The network shall be built from the [Base Vector Dataset](#) and shall include all routing relevant attributes to support realistic navigation and multimodal network analysis as relevant and available from the [Source Datasets](#). This shall include information on travel direction, connectivity relationships, functional classification, travel cost attributes, speed limits, time-dependent travel speed profiles by travel mode, routing hierarchy, historical traffic, access and turn restrictions, physical and operational constraints (i.e. height, width, weight, length, surface, tolls and other applicable restrictions), transportation facility relationships and other attributes required to accurately model movements within and between transportation modes.

For the network dataset, a data model different to NGIF may be suggested and applied, if mutually agreed by contractor and purchaser.

2.5. Detailed Geocoding Dataset product specifications

The base scale of the [Base Vector Dataset](#) shall serve as source for the locators supporting the ArcGIS geocoding engine.

A performance-optimized multi-role locator file shall include and reflect as minimum the data density, attribute completeness and quality of the [Source Datasets](#) and be built on the entire coverage.

The locators shall include as minimum roles for point and street addresses, points of interest, postal localities, administrative areas and geographic features as available from the [Source Datasets](#) and consist of hierarchical levels Country, Region, and preferably City. Additional locator files can be provided, if contractor and purchaser mutually agree on their benefit.

2.6. Detailed Subsequent Dataset specifications

All Subsequent datasets shall be produced from the relevant [Base Vector Dataset](#) data and to the parameters above to support consistent datasets:

- 3 Raster Tile datasets to styles as described in 2.3.2
- 1 Vector Tile dataset including styles as described in 2.3.3

2.7. Detailed Metadata and Support Data specifications

Metadata shall include:

- Complete metadata for all delivered datasets as applicable and in accordance with STANAG 2586 [Ref. 008]
- Metadata for vector data shall be embedded within the delivered FGDB's and in addition,
- provided as XML files

Supporting data shall include:

- Product documentation including a comprehensive description of the methodology and technical solution for the production, harmonization, conflation, generalization, maintenance, delivery and operation of the dataset describing a structured, repeatable and scalable solution adequate for the stated requirements
- A clear description of Source Datasets including time stamp
- Documentation of Quality control and Quality Assurance (QC/QA) and statistics indicating performed validation procedures supporting a level of confidence of data quality. The QC/QA methods shall include, at a minimum, geometry validation, attribute completeness assessment, road network connectivity and continuity checks. Particular emphasis shall be placed on the validation of the road network, including connectivity, continuity, and consistency of navigation-related attributes
- Clear description of repeatable procedure for global data conversion from source data into NGIF model, together with a clear documentation of encountered issues, limitations and shortfalls
- Clear description of implemented Latinization and transliteration methods in relation to the relevant STANAG [Ref. 006]
- Clear description of steps to transfer and implement all datasets into the CoreGIS environment
- Clear process description of maintaining and updating of the Source Datasets and the handling of changes in geometry and attributes together with an indication of required time to produce an updated dataset. The methodology shall demonstrate, how consistency is maintained across successive versions of the dataset
- If an incremental update is proposed, clear description of methodology identifying new, modified, and deleted features and implementation of the update
- Clear description of version definition and release notes with changes to a previous version
- All information relevant for routing and geocoding across different countries (e.g. post address structure, driving side, time zone, unit of measure and speed, etc.)

2.8. Detailed general product specifications

2.8.1. Defined Scales

The following scales have been defined for specific consideration:

- 1:10.000 (Base scale)
- 1:50.000
- 1:250.000
- 1:1.000.000

2.8.2. Coverage

All datasets shall be provided globally to support the general geospatial use cases as available per Source Datasets.

2.8.3. Formats

Besides the following mandatory formats, data may additionally be offered in others, if beneficial to the purchaser:

- The Base Vector Dataset shall be provided in Esri File Geodatabase (FGDB) format
- Styling for vector dataset shall be in ArcGIS Pro project file and as LayerFile
- Raster cache shall be in Esri Compact Cache V2 format
- Vector tiles shall be in Esri Vector Tile Package format
- Vector tile styles shall be in Esri Vector Tile style format
- If source dataset is not natively in NGIF data model, translation tables from source model shall be provided in MS Excel format and if used, optionally as Safe software FME file
- Supporting data shall be delivered in PDF and the adequate common format for each type as available (e.g. Microsoft Word format (.docx) for documents, Safe software FME files for translation tables, Microsoft Excel (.xlsx) for tables, etc.)
- Metadata shall be embedded within the delivered FGDB's and in addition be provided as STANAG 2586 [Ref. 008] compliant XML files
- Network files shall be in ArcGIS network dataset file format within a dedicated FGDB and include all network related data and a network dataset template in xml
- Geolocator files shall be in ArcGIS locator format
- Contour data (2.3.2.1) shall be provided in FGDB format
- Raster data used for hillshading (2.3.2.1) shall be provided in GeoTiff format

2.8.4. Compatibility with CoreGIS

All deliverables are required to be compatible with the version of the relevant ArcGIS component of CoreGIS and be provided in the latest version of each relevant component:

- For the initial dataset, the components of CoreGIS are the versions v11.3 for ArcGIS Enterprise and v3.3.7 for ArcGIS Pro
- For later updates, the versions of relevant software components will be communicated with the purchase order when executing options

2.8.5. Geospatial Information Framework

All data and deliverables, most importantly their schema shall adhere to the definitions in the NATO Geospatial Information Framework (NGIF) as per STANAG 2592 [Ref. 002], unless stated otherwise.

Purchaser will provide a structured data model to facilitate translation into target database, which the contractor shall follow for implementation.

2.8.6. Coordinate Reference System (CRS), tiling schemes and required level ranges

The CRS of the base vector dataset and all other geospatial data shall be in geographic coordinates on WGS84 Datum, unless stated otherwise.

The CRS of the raster and vector cache data shall be Web Mercator (EPSG:3857) using the World Web Mercator TileMatrixSet definition of OGC as used in ArcGIS Online, Google Maps and Bing Maps [Ref. 004].

2.8.7. The required level ranges for caches are:

- For Raster tiles levels L0 – L16
- For Vector tiles levels L0 – L18

2.8.8. Latin writing system

Attributes, specifically names and all other text within any of the datasets shall next to any other also be available in Roman script.

Where source data is using another writing system, the text shall be converted to Roman script following the procedures and transliteration methods described in the relevant NATO standardization agreements [Ref. 006]. Alternative names or those in the original writing system may be accepted where no Latinization method is available.

2.8.9. Licensing

The following two licensing models shall be considered for pricing:

2.8.9.1. Base License: All data shall be licensed to NATO's Geospatial Information Dissemination Level II [Ref. 005] to include:

Perpetual use and unlimited copies within NATO - entities, bodies and agencies
AND

Perpetual use and unlimited copies for NATO Nations, non-NATO Nations and all other NATO supporting entities participating to North Atlantic Council (NAC) approved initiatives strictly in support of such NAC approved activity.

2.8.9.2. NATO member Nation license (OPTION):

All data shall be licensed for perpetual use and unlimited copies within the requesting NATO member Nation for their national purposes.

2.8.10. Temporal currency

All Source Dataset for all products shall be most recently acquired by the Contractor and Overture Maps data acquired not longer than 1 year from the date of the respective contract award or amendment.

2.8.11. Update requirements

Costed options shall be provided for updates for a total length of 5 years for call off on request by the Purchaser for the two following scenarios:

2.8.11.1. Standard complete update of all products. Detected errors shall be addressed in the following version. Purely as indication, a 12-month update interval cycle is currently foreseen.

2.8.11.2. Specific complete update following bespoke changes for cases when they arise: As GI needs to adapt to changing reality and follow technology and cartographic standards, the Purchaser will provide input to the specific processing of the relevant update dataset with regards to, and not limited to cases like:

- Inconsistencies in representation (e.g. Overlapping labels, insufficient symbolization, etc.)

- Updates to the political situation (change in authoritative borders or names or related)
- Major inconsistencies identified in dataset (e.g. Wrong depiction of political situation compared to NATO's view, disconnection of road network, etc.)

The level of effort for the bespoke processing part for a specific complete update is limited to 100h labour per update package.

Each updated product shall be delivered replacing the previous version entirely.

Alternatively, if a situation suggests (e.g. very limited change), Contractor and Purchaser may mutually agree on an alternative procedure to replace individual components either manually following clear guidance or using an automated procedure. Such process shall result in a new dataset fully supporting change tracking, version comparison and preparedness for future updates.

2.9. Schedule of Supplies and Services (SSS)

2.9.1. Delivery of all products shall be within 26 weeks from the Effective Date of Purchase Order award.

2.9.2. An extension to this timeline may be granted to the successful bidder on request only if clear explanation of the parts of the work that cannot be performed within the timeline are presented in a plausible way and a realistic and acceptable revised delivery date is proposed.

2.9.3. The contractor shall send all data via a set of factory-new external USB Hard Drives and provide an additional platform supporting fast transfer and bulk-download via sFTP. The contractor shall engage with the NCIA Integrated Product Support (IPS) team to facilitate shipment and supply all required information for the required paperwork (Packing list, Form 302, etc.).

2.10. Communication

Contractor shall initiate all project meetings via MS Teams or, if mutually agreed, at contractor premises to present and agree on the workplan and subsequently progress in the project.

Any need for clarification shall be consolidated by the contractor and communicated in a timely and structured manner using adequate communication means.

SECTION 3 SOURCE DATASET REQUIREMENTS AND CONTRACTOR QUALIFICATIONS

3.1. Source Dataset Requirements

Next to the required Overture Maps or a dataset of documented equal or superior quality, contractor shall suggest geospatial data of coverage and quality relevant to augment the resulting Base Vector Dataset in the geospatial use cases and specifically routing/network analysis and geocoding/search.

3.2. Contractor Experience

Contractor must provide proof of the following experiences:

- 3.2.1. Demonstrated experience in conflating complex, global-scale multi-source vector datasets.
- 3.2.2. Ability to create the required styles.
- 3.2.3. Demonstrated experience in converting global-scale vector datasets into vector and raster tiles.
- 3.2.4. Demonstrated experience in converting complex, global-scale vector datasets between different data models.
- 3.2.5. Experience in producing required metadata in the relevant formats.
- 3.2.6. Demonstrated experience in converting complex, global-scale transportation datasets into network datasets in the described context.
- 3.2.7. Demonstrated experience in processing global-scale vector datasets into geolocators.

3.3. Personnel Requirements

- 3.3.1. The Contractor shall determine and provide the appropriate number and composition of personnel by team per processing step, possessing the necessary qualifications, skills, and experience to successfully fulfil all requirements of this effort. The Contractor shall ensure that the proposed team is available and capable of delivering high-quality, timely and fully compliant deliverables as specified in this SOW.
- 3.3.2. The experience of the technical personnel shall be demonstrated providing relevant résumés.

SECTION 4 PROJECT MILESTONES AND DELIVERABLES

4.1. Project Milestones and Deliverables Table

DELIVERABLES				
#	Deliverable	Performance Requirement	Due Date	Payment Term
1	The Base Vector Dataset	Paragraph 2.1.1	[X] days at the latest from Contract Award	
2	Defined Style files	Paragraph 2.1.2	Y days at the latest from Contract Award	
3	3 Raster cache datasets	Paragraph 2.1.3	Z days at the latest from Contract Award	
4	Vector tile dataset	Paragraph 2.1.4	A days at the latest from Contract Award	
5	Translation tables of source data to NGIF	Paragraph 2.1.5	B days at the latest from Contract Award	

6	Supporting data including Metadata	Paragraph 2.1.6	C days at the latest from Contract Award	
7	Network Dataset	Paragraph 2.1.7	D days at the latest from Contract Award	
8	Locator files	Paragraph 2.1.8	E days at the latest from Contract Award	

SECTION 5 COORDINATION AND REPORTING

- 5.1. Reporting mechanisms will be defined during the kick-off meeting.

SECTION 6 SCHEDULE

- 6.1. The contract will be effective immediately after signature.
- 6.2. An online kick-off meeting shall be held within one week after contract award, in which the relevant work plan and technical details will be discussed and a schedule for subsequent meetings agreed.

SECTION 7 TRAVEL

7.1. Requirements and Expenses

- 7.1.1. There is no travel mandated. However, if travel to purchaser location is required during the execution of this contract, travel arrangements will be the responsibility of the Contractor and the expenses will be reimbursed within the limits of the NCIA Travel Directive.

SECTION 8 PURCHASER-FURNISHED INFORMATION AND RESOURCES

8.1. Furnished Items and Access

All purchaser furnished data shall only be used by potential bidders, not shared further and used only in the context of this solicitation. All data shall be deleted at solicitation end by all parties except the winning bidder, who shall delete all data at contract end.

- 8.1.1. File Geodatabase containing point feature class with location and names of worldwide capital cities.
- 8.1.2. File Geodatabase containing polygon and polyline feature classes at scale 1:250.000 with location and names of worldwide country names and other boundaries.

8.1.3. Defence Geospatial Information Model (DGIM) for feature translation into NGIF.

SECTION 9 BID REQUIREMENTS

Bid requirements will be outlined in Book I, Project-Specific Bidding Instructions.

SECTION 10 REFERENCES

Identifier	Document	Description
[Ref. 001]	STANAG 2211 Ed. 7 (For Information)	Geodetic Datums, Projections, Grids, And Grid References - AGeoP-21 Edition A
[Ref. 002]	STANAG 2592 Ed. 2 (Required)	NATO Geospatial Information Framework (NGIF) - AGeoP-11 Edition B
[Ref. 003]	DGIWG 130 (Required)	Web Symbology
[Ref. 004]	WMTS Simple Profile (Required)	OGC® Web Map Tile Service (WMTS) Simple Profile Version: 1.0
[Ref. 005]	MC 0296/4 (For Information)	NATO Geospatial Policy
[Ref. 006]	STANAG 3689 Ed. 6 (Required)	AGeoP-25 PLACE NAME SPELLING ON MAPS AND CHARTS, Edition A Version 1, OCTOBER 2019
[Ref. 007]	STANAG 6523 Ed. 2 (For Information)	DEFENCE GEOSPATIAL WEB SERVICES – AGeoP-26 EDITION B
[Ref. 008]	STANAG 2586 Ed. 2 (Required)	NATO GEOSPATIAL METADATA PROFILE - AGeoP-08 EDITION B
[Ref. 009]	ISO 19115 (Required)	ISO 19115 Geographic information — Metadata
[Ref. 010]	ISO 19139 (For Information)	ISO/TS 19139 Geographic information — XML schema implementation
[Ref. 011]	ISO 19115-3 (Required)	ISO 19115-3 Geographic information — Metadata Part 3: XML schema implementation for fundamental concepts
[Ref. 012]	ISO 3166 (Required)	The International Standard for country codes and codes for their subdivisions

Links are included for the references relevant for bid preparation. Those marked 'For Information' are not required and will not be provided.

Abbreviations

ACO	Allied Command Operations
ACT	Allied Command Transformation
AGeoP	Allied Geographic Publication
C2	Command and Control
COI	Community of Interest
CoreGIS	NATO Bi-SC AIS Core Geographic Services
CRS	Coordinate Reference System
DGIF	Defence Geospatial Information Framework
DGIM	Defence Geospatial Information Model
DGIWG	Defence Geospatial Information Working Group
EEZ	Exclusive Economic Zone
EPSG	European Petroleum Survey Group
FA	Functional Area
FAS	Functional Area Service
FGDB	Esri File Geodatabase
GEBCO	General Bathymetric Chart of the Oceans
GeoINT	Geospatial Intelligence
GEOMETOC	Geospatial, Meteorological and Oceanographic
GI	Geospatial Information
GIS	Geographic Information System
IPS	NCIA Integrated Product Support
JISRC	Joint Intelligence, Surveillance and Reconnaissance Service Centre
MC	Military Committee
MetOc	Meteorological and Oceanographic
NAC	North Atlantic Council
NAMIS	NATO Automatic MetOc Information System
NCIA	NATO Communications and Information Agency
NGIF	NATO Geospatial Information Framework
OGC	Open Geospatial Consortium
PDF	Portable Document Format
SA	Situational Awareness
SC	Strategic Commands
sFTP	SSH File Transfer Protocol
SHAPE	Supreme Headquarters Allied Powers Europe
SRTM	Shuttle Radar Topography Mission
STANAG	Standardization Agreement
WGS84	World Geodetic System 84
WMTS	Web Map Tile Service