

**PHILIPPINE  
PORTS  
AUTHORITY**



**SUPPLY, DELIVERY, INSTALLATION  
AND COMMISSIONING OF VESSEL  
TRAFFIC MANAGEMENT SYSTEM  
(VTMS) AT THE PORTS OF ILOILO,  
DAVAO AND ZAMBOANGA**

**BID DOCUMENTS  
BAC-PGCS-018-2020**

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# ***Glossary of Acronyms, Terms, and Abbreviations***

**ABC** – Approved Budget for the Contract.

**BAC** – Bids and Awards Committee.

**Bid** – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender*. (2016 revised IRR, Section 5[c])

**Bidder** – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

**Bidding Documents** – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

**BIR** – Bureau of Internal Revenue.

**BSP** – Bangko Sentral ng Pilipinas.

**Consulting Services** – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

**CDA** - Cooperative Development Authority.

**Contract** – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

**CIF** – Cost Insurance and Freight.

**CIP** – Carriage and Insurance Paid.

**CPI** – Consumer Price Index.

**DDP** – Refers to the quoted price of the Goods, which means “delivered duty paid.”

**DTI** – Department of Trade and Industry.

**EXW** – Ex works.

**FCA** – “Free Carrier” shipping point.

**FOB** – “Free on Board” shipping point.

**Foreign-funded Procurement or Foreign-Assisted Project**– Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

**Framework Agreement** – Refers to a written agreement between a procuring entity and a supplier or service provider that identifies the terms and conditions, under which specific purchases, otherwise known as “Call-Offs,” are made for the duration of the agreement. It is in the nature of an option contract between the procuring entity and the bidder(s) granting the procuring entity the option to either place an order for any of the goods or services identified in the Framework Agreement List or not buy at all, within a minimum period of one (1) year to a maximum period of three (3) years. (GPPB Resolution No. 27-2019)

**GFI** – Government Financial Institution.

**GOCC** – Government-owned and/or –controlled corporation.

**Goods** – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term “related” or “analogous services” shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

**GOP** – Government of the Philippines.

**GPPB** – Government Procurement Policy Board.

**INCOTERMS** – International Commercial Terms.

**Infrastructure Projects** – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national

buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

**LGUs** – Local Government Units.

**NFCC** – Net Financial Contracting Capacity.

**NGA** – National Government Agency.

**PhilGEPS** - Philippine Government Electronic Procurement System.

**Procurement Project** – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

**PSA** – Philippine Statistics Authority.

**SEC** – Securities and Exchange Commission.

**SLCC** – Single Largest Completed Contract.

**Supplier** – refers to a citizen, or any corporate body or commercial company duly organized and registered under the laws where it is established, habitually established in business and engaged in the manufacture or sale of the merchandise or performance of the general services covered by his bid. (Item 3.8 of GPPB Resolution No. 13-2019, dated 23 May 2019). Supplier as used in these Bidding Documents may likewise refer to a distributor, manufacturer, contractor, or consultant.

**UN** – United Nations.



## **INVITATION TO BID**

### **FOR THE SUPPLY, DELIVERY, INSTALLATION AND COMMISSIONING OF VESSEL TRAFFIC MANAGEMENT SYSTEM (VTMS) AT THE PORTS OF ILOILO, DAVAO AND ZAMBOANGA**

The Philippine Ports Authority, through the Corporate Budget of the Authority for CY 2020, intends to apply the sum of **₱ 700,000,000.00** being the Approved Budget for the Contract (ABC) to payments under the contract for the **Supply, Delivery, Installation and Commissioning of Vessel Traffic Management System (VTMS) at the Ports of Iloilo, Davao and Zamboanga (BAC-PGCS-018-2020)**. Bids received in excess of the ABC shall be automatically rejected at bid opening.

The Philippine Ports Authority now invites bids for the above Procurement Project. The Supply, Delivery, Installation, Testing and Commissioning works is required within Fifteen (15) months from the receipt by the successful bidder of the Notice to Proceed, to include a three (3) year extended warranty period with a five (5) year maintenance services. Bidders should have completed, within five (5) years from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).

Bidding will be conducted through open competitive bidding procedures using a non-discretionary "pass/fail" criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) 9184. Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA 5183.

Prospective Bidders may obtain further information from the Philippine Ports Authority Bids and Awards Committee (BAC) and inspect the Bidding Documents at the address given below during 8:00 a.m. to 5:00 p.m., Monday to Friday.

A complete set of Bidding Documents may be acquired by interested Bidders on **07 December 2020** from the given address and website(s) below and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of **Seventy Five Thousand Pesos (P75,000.00)**. The Procuring Entity shall allow the bidder to present its proof of payment for the fees in person.

The Philippine Ports Authority's Bids and Awards Committee will hold a Pre-Bid Conference on **16 December 2020 at 2:30 p.m.** at the PPA Function Room, 7<sup>th</sup> Floor, PPA Bldg., Bonifacio Drive, South Harbor, Port Area, Manila, and/or through video conferencing or webcasting via zoom, which shall be open to all prospective bidders.

Bids must be duly received by the BAC Secretariat through manual submission at the office address indicated below on or before **12 January 2021 at 1:00 p.m.** Late bids shall not be accepted.


All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 14.

Bid opening shall be on **12 January 2021 at 2:00 p.m.** at the 7<sup>th</sup> Floor, PPA Building, A. Bonifacio Drive, South Harbor, Port Area, Manila. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

The Philippine Ports Authority reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Section 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

For further information, please refer to:

BAC Secretariat, Philippine Ports Authority  
5<sup>th</sup> Floor, PPA Bldg., A. Bonifacio Drive,  
South Harbor, Port Area, Manila  
Telephone Nos. 8 527-47-35  
8 527-83-56 to 83 loc. 539  
PPA Website: [www.ppa.com.ph](http://www.ppa.com.ph)  
GPPB Website: [www.gpbb.com.ph](http://www.gpbb.com.ph)



**MARK JON S. PALOMAR**  
Chairperson, PPA Head Office Bids and Awards  
Committee for the Procurement of Goods and  
Consultancy Services (HO-BAC-PGCS)

## **1. Scope of Bid**

The Procuring Entity, PHILIPPINE PORTS AUTHORITY wishes to receive Bids for the Supply, Delivery, Installation and Commissioning of Vessel Traffic Management System (VTMS) at the Ports of Iloilo, Davao and Zamboanga, with identification number BAC-PGCS-018-2020.

The Procurement Project (referred to herein as “Project”) is composed of a single lot, the details of which are described in Section VII (Technical Specifications).

## **2. Funding Information**

2.1. The Philippine Ports Authority through its corporate budget for the Calendar Year (CY) 2020 in the amount of SEVEN HUNDRED MILLION PESOS (Php700,000,000.00).

2.2. The source of funding is the Corporate Budget of the PHILIPPINE PORTS AUTHORITY.

## **3. Bidding Requirements**

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manuals and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or **IB** by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have verified and accepted the general requirements of this Project, including other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

## **4. Corrupt, Fraudulent, Collusive, and Coercive Practices**

The Procuring Entity, as well as the Bidders and Suppliers, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex “I” of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

## **5. Eligible Bidders**

5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.



- 5.2 Foreign ownership limited to those allowed under the rules may participate in this Project.
- 5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Bidder shall have an SLCC that is at least one (1) contract similar to the Project the value of which, adjusted to current prices using the PSA's CPI, must be at least equivalent to at least fifty percent (50%) of the ABC.
- 5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.1 of the 2016 IRR of RA No. 9184.

## **6. Origin of Goods**

There is no restriction on the origin of goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN, subject to Domestic Preference requirements under ITB Clause 18.

## **7. Subcontracts**

- 7.1 The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than twenty percent (20%) of the Project.

The Procuring Entity has prescribed that:

Subcontracting is not allowed.

## **8. Pre-Bid Conference**

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address at the PPA Function Room, 7<sup>th</sup> Floor, PPA Building, Bonifacio Drive, South Harbor, Port Area, Manila and/or through videoconferencing/webcasting} as indicated in paragraph 6 of the IB.

## **9. Clarification and Amendment of Bidding Documents**

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the IB, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

## **10. Documents comprising the Bid: Eligibility and Technical Components**

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in Section VIII (Checklist of Technical and Financial Documents).

- 10.2. The Bidder's SLCC as indicated in **ITB** Clause 5.3 should have been completed within five (5) years prior to the deadline for the submission and receipt of bids.
- 10.3. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. Similar to the required authentication above, for Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

## **11. Documents comprising the Bid: Financial Component**

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.
- 11.2. If the Bidder claims preference as a Domestic Bidder or Domestic Entity, a certification issued by DTI shall be provided by the Bidder in accordance with Section 43.1.3 of the 2016 revised IRR of RA No. 9184.
- 11.3. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.
- 11.4. For Foreign-funded Procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

## **12. Bid Prices**

- 12.1. Prices indicated on the Price Schedule shall be entered separately in the following manner:
  - a. For Goods offered from within the Procuring Entity's country:
    - i. The price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable);
    - ii. The cost of all customs duties and sales and other taxes already paid or payable;
    - iii. The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and
    - iv. The price of other (incidental) services, if any, listed in e.
  - b. For Goods offered from abroad:

- i. Unless otherwise stated in the **BDS**, the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.
- ii. The price of other (incidental) services, if any, as listed in **Section VII (Technical Specifications)**.

### **13. Bid and Payment Currencies**

- 13.1. For Goods that the Bidder will supply from outside the Philippines, the bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies, shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.
- 13.2. Payment of the contract price shall be made in Philippine Pesos.

### **14. Bid Security**

- 14.1. The Bidder shall submit a Bid Securing Declaration<sup>1</sup> or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.
- 14.2. The Bid and bid security shall be valid for One Hundred Twenty (120) calendar days from the date of the opening of bids. Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

### **15. Sealing and Marking of Bids**

Each bidder shall submit one copy of the first and second components of the Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

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<sup>1</sup> In the case of Framework Agreement, the undertaking shall refer to entering into contract with the Procuring Entity and furnishing of the performance security or the performance securing declaration within ten (10) calendar days from receipt of Notice to Execute Framework Agreement.

## **16. Deadline for Submission of Bids**

- 16.1. The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the **IB**.

## **17. Opening and Preliminary Examination of Bids**

- 17.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

- 17.2. The preliminary examination of bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

## **18. Domestic Preference**

- 18.1. The Procuring Entity will grant a margin of preference for the purpose of comparison of Bids in accordance with Section 43.1.2 of the 2016 revised IRR of RA No. 9184.

## **19. Detailed Evaluation and Comparison of Bids**

- 19.1. The Procuring BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*," using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of the 2016 revised IRR of RA No. 9184.
- 19.2. If the Project allows partial bids, bidders may submit a proposal on any of the lots or items, and evaluation will be undertaken on a per lot or item basis, as the case maybe. In this case, the Bid Security as required by **ITB** Clause 15 shall be submitted for each lot or item separately.
- 19.3. The descriptions of the lots or items shall be indicated in **Section VII (Technical Specifications)**, although the ABCs of these lots or items are indicated in the **BDS** for purposes of the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184. The NFCC must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder.
- 19.4. The Project shall be awarded as one Project having several items that shall be awarded as one contract.

- 19.5. Except for bidders submitting a committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation, all Bids must include the NFCC computation pursuant to Section 23.4.1.4 of the 2016 revised IRR of RA No. 9184, which must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder. For bidders submitting the committed Line of Credit, it must be at least equal to ten percent (10%) of the ABCs for all the lots or items participated in by the prospective Bidder.

## **20. Post-Qualification**

- 20.1. Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS) and other appropriate licenses and permits required by law and stated in the BDS.

## **21. Signing of the Contract**

- 21.1. The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the BDS.

## Bid Data Sheet

ITB Clause	
5.3	<p>For this purpose, contracts similar to the Project shall be:</p> <ul style="list-style-type: none"> <li>a. Contract for the Supply, Delivery, Installation and Commissioning of Vessel Traffic Management System (VTMS).</li> <li>b. completed within five (5) years prior to the deadline for the submission and receipt of bids.</li> </ul>
7.1	Subcontracting is not allowed.
12	The price of the Goods shall be quoted DDP <i>[Manila]</i> or the applicable International Commercial Terms (INCOTERMS) for this Project.
14.1	<p>The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts:</p> <ul style="list-style-type: none"> <li>a. The amount of not less than Fourteen Million Pesos (Php14,000,000.00), if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; or</li> <li>b. The amount of not less than Thirty Five Million Pesos (Php35,000,000.00) if bid security is in Surety Bond.</li> </ul>
15	<p>Each Bidder shall submit <b>ONE (1) original and SIX (6) copies</b> of its Technical and Financial Components of its Bid in two (2) separate sealed bid envelopes, which should be submitted simultaneously. Each of the bid documents should be individually sealed.</p> <p>All bid documents shall be book-bound, hard-bound and properly labelled with index tabs.</p>
19.3	Partial bid is not allowed. The goods are grouped in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.
20.2	No additional requirements.
21.2	No additional requirements.

## ***Section IV. General Conditions of Contract***

## **1. Scope of Contract**

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

Additional requirements for the completion of this Contract shall be provided in the **Special Conditions of Contract (SCC)**.

## **2. Advance Payment and Terms of Payment**

- 2.1. Advance payment of the contract amount is provided under Annex “D” of the revised 2016 IRR of RA No. 9184.
- 2.2. The Procuring Entity is allowed to determine the terms of payment on the partial or staggered delivery of the Goods procured, provided such partial payment shall correspond to the value of the goods delivered and accepted in accordance with prevailing accounting and auditing rules and regulations. The terms of payment are indicated in the SCC.

## **3. Performance Security**

Within ten (10) calendar days from receipt of the Notice of Award by the Bidder from the Procuring Entity but in no case later than prior to the signing of the Contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR of RA No. 9184.

## **4. Inspection and Tests**

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the SCC, **Section IV (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.

All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.



## **5. Warranty**

- 6.1. In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.
- 6.2. The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, repair or replace the defective Goods or parts thereof without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

## **6. Liability of the Supplier**

The Supplier's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Supplier is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

## ***Section V. Special Conditions of Contract***

## Special Conditions of Contract

GCC Clause	
1	<p><b>Delivery and Documents –</b></p> <p>For purposes of the Contract, “EXW,” “FOB,” “FCA,” “CIF,” “CIP,” “DDP” and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of INCOTERMS published by the International Chamber of Commerce, Paris. The Delivery terms of this Contract shall be as follows:</p> <p><i>[For Goods supplied from abroad, state:]</i> “The delivery terms applicable to the Contract are DDP delivered <i>[indicate place of destination]</i>. In accordance with INCOTERMS.”</p> <p><i>For Goods supplied from within the Philippines, state:]</i> “The delivery terms applicable to this Contract are delivered <i>[indicate place of destination]</i>. Risk and title will pass from the Supplier to the Procuring Entity upon receipt and final acceptance of the Goods at their final destination.”</p> <p>Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in Section VI (Schedule of Requirements).</p> <p>For purposes of this Clause the Procuring Entity’s Representative at the Project Site is Philippine Ports Authority-Head Office, Manila</p> <p><b>Incidental Services –</b></p> <p>The Supplier is required to provide all of the following services, including additional services, if any, specified in Section VI. Schedule of Requirements:</p> <ol style="list-style-type: none"> <li>a. performance or supervision of on-site assembly and/or start-up of the supplied Goods;</li> <li>b. furnishing of tools required for assembly and/or maintenance of the supplied Goods;</li> <li>c. furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;</li> <li>d. performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and</li> <li>e. organize and conduct of training program for operators and VTMS technical personnel of PPA in accordance with 4.14 of the Terms of Reference;</li> </ol> <p>The Contract price for the Goods shall include the prices charged by the Supplier for incidental services and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.</p>

**Spare Parts –**

The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

- a. such spare parts as the Procuring Entity may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under this Contract; and
- b. in the event of termination of production of the spare parts:
  - i. advance notification to the Procuring Entity of the pending termination, in sufficient time to permit the Procuring Entity to procure needed requirements; and
  - ii. following such termination, furnishing at no cost to the Procuring Entity, the blueprints, drawings, and specifications of the spare parts, if requested.

The spare parts and other components required are listed in **Section VI (Schedule of Requirements)** and the cost thereof are included in the contract price.

The Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spare parts or components for the Goods for a period of ten (10) years after the last day of manufacturing of the specific model.

Spare parts or components shall be supplied as promptly as possible, but in any case, within two (2) months of placing the order.

**Packaging –**

The Supplier shall provide such packaging of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in this Contract. The packaging shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packaging case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

The packaging, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified below, and in any subsequent instructions ordered by the Procuring Entity.

The outer packaging must be clearly marked on at least four (4) sides as follows:

Name of the Procuring Entity  
Name of the Supplier

Contract Description  
Final Destination  
Gross weight  
Any special lifting instructions  
Any special handling instructions  
Any relevant HAZCHEM classifications

A packaging list identifying the contents and quantities of the package is to be placed on an accessible point of the outer packaging if practical. If not practical the packaging list is to be placed inside the outer packaging but outside the secondary packaging.

**Transportation –**

Where the Supplier is required under Contract to deliver the Goods CIF, CIP, or DDP, transport of the Goods to the port of destination or such other named place of destination in the Philippines, as shall be specified in this Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.

Where the Supplier is required under this Contract to transport the Goods to a specified place of destination within the Philippines, defined as the Project Site, transport to such place of destination in the Philippines, including insurance and storage, as shall be specified in this Contract, shall be arranged by the Supplier, and related costs shall be included in the contract price.

Where the Supplier is required under Contract to deliver the Goods CIF, CIP or DDP, Goods are to be transported on carriers of Philippine registry. In the event that no carrier of Philippine registry is available, Goods may be shipped by a carrier which is not of Philippine registry provided that the Supplier obtains and presents to the Procuring Entity certification to this effect from the nearest Philippine consulate to the port of dispatch. In the event that carriers of Philippine registry are available but their schedule delays the Supplier in its performance of this Contract the period from when the Goods were first ready for shipment and the actual date of shipment the period of delay will be considered force majeure.

The Procuring Entity accepts no liability for the damage of Goods during transit other than those prescribed by INCOTERMS for DDP deliveries. In the case of Goods supplied from within the Philippines or supplied by domestic Suppliers risk and title will not be deemed to have passed to the Procuring Entity until their receipt and final acceptance at the final destination.

**Intellectual Property Rights –**

The Supplier shall indemnify the Procuring Entity against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof.

2.2	<p>The terms of payment and progress billings shall be as follows:</p> <p>Billing No. 1 – Upon delivery and receipt of goods with equivalent amount in the contract.</p> <p>Billing No. 2 – Upon completion of installation, training and site acceptance.</p> <p>Billing No. 3 – Completion of every semi-annual maintenance for the first year of maintenance services.</p> <p>Billing No. 4 – Completion of every semi-annual maintenance for the second year of maintenance services.</p> <p>Billing No. 5 – Completion of every semi-annual maintenance for the third year of maintenance services.</p> <p>Billing No. 6 – Completion of every semi-annual maintenance for the fourth year of maintenance services.</p> <p>Billing No. 7 – Completion of every semi-annual maintenance for the fifth year of maintenance services.</p> <p>Any progress payments shall be allowed however, upon completion of the work as per contract.</p> <p>All progress billing shall be submitted together with corresponding documents representing support for claims for payment.</p>
4	<p>The Site Acceptance Test (SAT) with concerned PMOs shall be done separately in the following:</p> <ul style="list-style-type: none"> <li>a. Port of Iloilo</li> <li>b. Port of Davao</li> <li>c. Port of Zamboanga</li> </ul>

## ***Section VI. Schedule of Requirements***

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery to the project site.

<b>Item Number</b>	<b>Description<sup>2</sup></b>	<b>Quantity</b>	<b>Total</b>	<b>Delivered, Weeks/Months</b>
	Supply, Delivery, Installation, Testing and Commissioning works of Vessel Traffic Management System (VTMS) at the Ports of Iloilo, Davao and Zamboanga			within fifteen (15) months (project establishment phase), from the date of receipt of the Notice to Proceed
	Provision for the three (3) year extended warranty in accordance with Item 11.1 of the Terms of Reference.			Effective on the date indicated on the Certificate of Completion of the establishment phase.
	Provision for the five (5) year maintenance services in accordance with Item 11.2 of the Terms of Reference.			Effective on the date indicated on the Certificate of Completion of the installation, training and site acceptance.

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<sup>2</sup> Subject to the Technical Specifications under Item Nos. 7 & 8 of the Terms of Reference

## ***Section VII. Technical Specifications***



## Technical Specifications

Item	Specification	Statement of Compliance
		<p><i>[Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be</i></p>

		<i>false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]</i>
	<p><b>SCOPE OF WORK</b></p> <p>Supply, Delivery, Installation, Testing and Commissioning of Vessel Traffic Management System (VTMS) at the Ports of Iloilo, Davao and Zamboanga</p> <ol style="list-style-type: none"> <li>1. Conduct of a separate study and review by the interested or participating bidder to validate the requirements of the project and to augment the same as appropriate subject to the approval of PPA.</li> <li>2. Design and construction of control center in each of the ports under consideration. Locations of the control center shall be specified by PPA and shall be at a location within the port area which will not be affected by any future development in the ports.</li> <li>3. Validation of boreholes or soil bearing capacity for purposes of pile driving which shall be provided by PPA.</li> <li>4. Interconnection between the VTMS Control Centers and the Control Monitoring and Information System (CMIS) at the PPA Head Office. The contractor shall guarantee the compatibility of hardware and software in the interconnection with the CMIS that shall not affect and disrupt the operation.</li> <li>5. Supply a system that can detect, plot and track vessels and stationary objects like shore lines and navigational aids. It must have user friendly displays, which show the detected objects on the background of an electronic chart, known as Electronic Navigational Chart (ENC), approved by the NAMRIA, which shall be state of the art.</li> </ol>	

	<p>6. Installation of consoles with at least, but not limited to, the following functional capabilities:</p> <p>6.1 Accept data from the sensors and integrate it to enhance detection of vessels and stationary objects</p> <p>6.2 Accept information from the data bases and integrate it with that of the vessel position information on the traffic display</p> <p>6.3 Provide data about vessel movements to appropriate data bases</p> <p>6.4 Capable of monitoring all the controlled functions and forward designated results to the display</p> <p>7. Provision of traffic displays with menu-oriented access for the operator and shall use windows for the detailed display of all functions. The main windows shall have the following features and capabilities:</p> <p>7.1 Access control to operator controllable data handling functions</p> <p>7.2 Choice of currently monitored functions</p> <p>7.3 System window: General system status information, sensor status</p> <p>7.4 Traffic situation window: charts, plots, tracks, sectors, fairways, anchor areas, coastlines, outlines of shoals, navigational aids, alert zones</p> <p>7.5 Target identification, traffic situation alerts (collision avoidance, SAR applications, etc.)</p> <p>7.6 System/Equipment alert window: at least three levels</p> <p>7.7 Operator window: to facilitate communication for the operator, such as sending and receiving messages relevant to his work</p> <p>7.8 Data handling</p> <p>7.9 AIS messages (receive and transmit)</p> <p>7.10 Alarms for lost target, equipment failure and others (warning line, speed limit, anchor watch etc.)</p>	
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	<p>7.11 Tagging of radar target</p> <p>8. Installation of LAN network components for the control center.</p> <p>9. Provision of traffic display that is selectable by the operator as to the type, manner and combination of information for display and that includes, but need not be limited to, the following:</p> <p>9.1 Plots</p> <p>9.2 Tracks with course vectors and labels</p> <p>9.3 Range and sector markers</p> <p>9.4 Charts (Electronic Navigational Chart)</p> <p>9.5 Capability to zoom and off-center to maximum range</p> <p>9.6 Measurement of distance and bearing between any two points in the position sensor coverage area (Electronic bearing line / variable range marker)</p> <p>9.7 Closest Point of Approach (CPA) and Time to Closest Point of Approach (TCPA) for vessels and any point or line and vessel. Warnings (visual, audible and other electronic alert) of critical values of CPA and TCPA</p> <p>9.8 Guard lines and circles, warnings and alarms when a vessel crosses these marked boundaries (visual, audible and other electronic alert)</p> <p>10. Supply, installation, test and commissioning, and setting to work of the following equipment and systems including the components and subsystems thereof in accordance to the specifications of the manufacturers and existing standards and regulations:</p> <p>10.1 RADAR and Radar Data Processing system</p> <p>10.2 Automatic Identification System (AIS)</p> <p>10.3 VHF Communication System</p> <p>10.4 Database System</p> <p>10.5 Closed Circuit TV (CCTV) System</p>	
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	<p>10.6 Multi-sensor Integrated Processor</p> <p>10.7 Recording and playback Processor</p> <p>11. Supply of a system that has automated functions which include the calculations of Closest Point of Approach (CPA) and Time to CPA (TCPA) and warnings of potential collisions as well as course deviations from shipping lanes and proximity to danger zones. The warning from the system to the controller must be timely and concise, i.e. alarm is automatically activated if CPA is 0.2 nautical miles and 5 minutes for TCPA.</p> <p>12. Provision of the traffic display using symbols that conform to IMO recommendations, with the addition of other symbols to convey to the operator required information.</p> <p>13. Application of redundancy concept for the following equipment/installations:</p> <p>13.1 VTMS LAN</p> <p>13.2 Radar transceivers/transmitters</p> <p>14. Organize and conduct of the training program for operators and VTMS technical personnel of PPA. The training courses shall be conducted separately at the respective areas of the concerned ports. Planning of training shall be done in coordination with PPA designated Project Manager for VTMS Project for a period of approximately ten (10) days. The hands-on training shall be conducted within the training course with the assistance of the technical personnel of the winning bidder. The content of training module shall include but not limited to the following:</p> <p>14.1 Basic physics of radar</p> <p>14.2 Basic concept and operation of radar</p> <p>14.3 Knowledge, understanding and operation of all components and controls of the system.</p> <p>14.4 Preventive Maintenance and Basic Troubleshooting and Repair</p>	
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	<p>15. Conduct of Site Acceptance Test (SAT) with concerned PMOs, shall be done separately in the following:</p> <ul style="list-style-type: none"> <li>a. Port of Iloilo</li> <li>b. Port of Davao</li> <li>c. Port of Zamboanga</li> </ul>	
	<p><b>RESPONSIBILITIES OF THE WINNING BIDDER:</b></p> <ul style="list-style-type: none"> <li>1. Supply, transport, delivery, installation, starting-up, operationalization, commissioning of brand-new equipment and software components for the entire system;</li> <li>2. Availability of radar system spare parts during the ten (10) year life;</li> <li>3. Guarantee all software and hardware have been tested and inspected prior to their delivery;</li> <li>4. Guarantee that all major equipment (i.e. radar antenna, radar data processors, radar transmitter-receiver, AIS, and VHF Communication System) have a life expectancy of ten (10) years and shall be covered by an extended warranty period of three (3) years. After the turnover of equipment and facilities, qualified technical personnel shall be on standby and shall be ready to attend to technical problems that may occur within the warranty period;</li> <li>5. Guarantee that the components are standard state-of-the-art equipment and have been proven as successful operation in local or foreign ports;</li> <li>6. Supply of Operator's and Service Manuals, in print and soft copy versions (PDF searchable);</li> <li>7. Secure and pay the necessary import permits/clearances issued by the National Telecommunications Commission (NTC), Local Government Units and other government agencies.</li> <li>8. Pay all taxes, import duties, port dues and other charges;</li> <li>9. Provision for the manufacturer's operational and maintenance manuals for COTS components and subsystems;</li> </ul>	

<p>10. Supply of equipment rack and furniture (table, chairs) for the operator's and database workstations and other VTMS monitoring equipment;</p> <p>11. Ensure that all operator-oriented documentations, manuals and all information displayed on the screen, including symbols, menus etc. shall be in English language, using standard IMO symbols;</p> <p>12. Ensure that human interface of the system shall be designed using the related IMO standards and recommendations particularly for operational procedures and symbology;</p> <p>13. Provision for three (3) year extended warranty period with a five (5) year maintenance period;</p> <p>14. Provision for detailed cost estimates, construction methodology, material cost and specifications;</p> <p>15. Initial supply of maintenance tools and testing equipment (i.e. multi-tester); and</p> <p>16. Supply spare parts or components as promptly as possible, but in any case, within two (2) months of placing the order.</p>																																									
<p><b>OPERATIONAL AND FUNCTIONAL REQUIREMENTS, DESCRIPTIONS AND SPECIFICATIONS OF THE EQUIPMENT FOR THE PPA VTMS SYSTEMS:</b></p> <p>• <b>Equipment Requirement</b></p> <p>Vessel Traffic Management system shall compose of the following:</p> <table border="1"> <thead> <tr> <th></th> <th>Particular</th> <th>VTMS Iloilo</th> <th>VTMS Davao</th> <th>VTMS Zamboanga</th> </tr> </thead> <tbody> <tr> <td colspan="5"><b>1. VTMS Control Center and Radar Station</b></td> </tr> <tr> <td>1.1</td> <td>18 feet X-band Radar Antenna (Circular Polarization)</td> <td>1 set</td> <td>1 set</td> <td>1 set</td> </tr> <tr> <td>1.2</td> <td>X-band Solid-State Radar Transmitter-Receiver (Dual)</td> <td>1 set</td> <td>1 set</td> <td>1 set</td> </tr> <tr> <td>1.3</td> <td>Radar Data Processor (RDP)</td> <td>1 set</td> <td>1 set</td> <td>1 set</td> </tr> <tr> <td>1.4</td> <td>Service Display</td> <td>1 set</td> <td>1 set</td> <td>1 set</td> </tr> <tr> <td>1.5</td> <td>Multi-sensor Integrated Processor</td> <td>1 set</td> <td>1 set</td> <td>1 set</td> </tr> <tr> <td>1.6</td> <td>Multi-Function Console</td> <td>2 sets</td> <td>2 sets</td> <td>2 sets</td> </tr> </tbody> </table>			Particular	VTMS Iloilo	VTMS Davao	VTMS Zamboanga	<b>1. VTMS Control Center and Radar Station</b>					1.1	18 feet X-band Radar Antenna (Circular Polarization)	1 set	1 set	1 set	1.2	X-band Solid-State Radar Transmitter-Receiver (Dual)	1 set	1 set	1 set	1.3	Radar Data Processor (RDP)	1 set	1 set	1 set	1.4	Service Display	1 set	1 set	1 set	1.5	Multi-sensor Integrated Processor	1 set	1 set	1 set	1.6	Multi-Function Console	2 sets	2 sets	2 sets
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1.7	Large Display Console	1 set	1 set	1 set
1.8	Recording and playback processor (record/replay)	1 set	1 set	1 set
1.9	Database Server (Redundant)	1 set	1 set	1 set
1.10	Data Base Terminal	1 set	1 set	1 set
1.11	VTMS Data Server	1 set	1 set	1 set
1.12	Resource Management Server	1 set	1 set	1 set
1.13	Automatic Identification System (AIS) Base Station Dual Transponder	1 set	1 set	1 set
1.14	VHF Transceiver	2 sets	2 sets	2 sets
1.15	VHF Controller	2 sets	2 sets	2 sets
1.16	VHF Server	1 set	1 set	1 set
1.17	CCTV Camera	1 set	1 set	1 set
1.18	Network Video recorder	1 set	1 set	1 set
1.19	CCTV Monitor Display	1 set	1 set	1 set
1.20	Meteorological Sensor	1 set	1 set	1 set
1.21	Meteorological Monitoring	1 set	1 set	1 set
1.22	Inkjet Printer	1 set	1 set	1 set
1.23	Large Display	2 sets	2 sets	2 sets
1.24	Uninterruptible Power Supply	1 lot	1 lot	1 lot
1.25	Fast Ethernet Switch	1 lot	1 lot	1 lot
1.26	IP ROUTER/FIREWALL VPN	1 set	1 set	1 set
1.27	VOIP Telephone	1 set	1 set	1 set
1.28	Diesel Engine Generator	1 lot	1 lot	1 lot
<b>2. Office of the Port Manager</b>				
2-1	Large Display Console	1 set	1 set	1 set
2-2	Large Display	1 set	1 set	1 set
2-3	UPS	1 set	1 set	1 set
2-4	VOIP Telephone	1 set	1 set	1 set
2-5	Fast Ethernet switch	1 lot	1 lot	1 lot
2-6	Communication link to VTMSCC	1 lot	1 lot	1 lot

• **PPA Head Office CMIS**

Item	Particular	Quantity
3-1	3 x 2 Video Wall	1 lot
3-2	Video Wall Controller	1 set
3-3	VOIP Converter for VHF Radio	12 sets
3-4	Additional monitor 24 inches	2 sets

• **Equipment Descriptions and Specifications**

▪ **18 ft. X-Band Radar Antenna**

X-band radar antenna of the radar site shall be a slotted array type and comprised of the radiator section that radiates the electric radar waves and the pedestal that rotates the system. An encoder should be incorporated in the pedestal in order to synchronize the rotation of the



radar image and to produce azimuth signal that indicate the direction of radiation.

### **Specifications**

Type	:18 feet slotted array
Frequency band	:9,400 $\pm$ 50MHz
Rotation Speed	:20rpm
Polarization	:Circular
Gain	:34dB $\pm$ 1dB (Typical)
Bearing Generation	:Incremental encoder
Wind Velocity	
Operational	:40 m/s for continuous
Survival	:60 m/s for continuous
Driving Motor	AC 220V(100V), 50Hz, 3 $\phi$

#### **▪ Radar Transmitter-Receiver (Dual Solid-State X-Band)**

Two (2) sets of TRX shall be supplied to provide redundant operation and to maintain continuous operation of the system without being affected even by failure occurrence in one channel. Each TRX should be switchable to the antenna or dummy load by a wave guide switch.

The TRX shall consist of Solid-State Power Amplifier (SSPA), microwave component circuit, transmitter-receiver circuit, IF input/output circuit, signal processing circuit, interface circuit and power supply circuit.

A total of one (1) set Dual-state X-Band Radar Transmitter-Receiver shall be installed in each VTMS Control Center of each port

### **Main Functions**

- a) Generate, transmit, and receive 9GHz microwave waveform (electromagnetic pulse) from and to the radar antenna
- b) Produce raw radar images and sends the images to the Radar Data Processor

### **Design Features**

- a) Shall have two (2) Radar Transmitter and Receiver for redundancy.

	<p>b) Shall be a Solid state transmitter design to provide high reliability and reduce maintenance, low power consumption</p> <p>c) Shall have low power transmission</p> <p><b>Specifications</b></p> <p>a) Mechanical layout: Rack Mount or Wall Mount/Tower Mount</p> <p>b) Transmitting frequency: 9GHz band (P0N: 9410MHz, Q0N9440MHz)</p> <p>c) Transmitter power: 200W+1dB, -3dB</p> <p>d) Pulse Width:</p> <p>: 0.16<math>\mu</math>s – 0.30<math>\mu</math>s (N on-Chirp: for short range)</p> <p>: 4.5<math>\mu</math>s – 18.3<math>\mu</math>s (Chirp: for long range)</p> <p>e) Transmission pulse width/pulse repetition frequency (PRF): 2280Hz – 1280Hz</p> <p>f) Transmitter: Solid-state power amplifier</p> <p>g) Video processing function: Interference rejection, Constant False Alarm Rate (CFAR), Coherent Integration</p> <p>h) Output signal: Radar video and trigger (LAN)</p> <p>i) Power Supply: DC48V +10%</p> <p>j) Waveguide Switch: Installed inside</p> <p>k) Radar Control/Monitoring: LAN Interface/serial interface (for maintenance)</p> <p>l) Solid state radar transceivers have life expectancy of 10 years.</p> <p>▪ <b>Radar Data Processor</b></p> <p>Radar Data Processor shall consist of multiple units Image Server/Tracker. The radar interface unit shall receive the control data via data communication link system from the VTS Operation Display in the control center and controls operations of the radar equipment such as radar antenna, transmitter-receiver, waveguide changeover, etc. The image server/tracker shall provide</p>	
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the function of suppression of noise, sea-rain clutters, and also target extraction function from radar video for the tracking. The processed radar video signal shall be outputted to the radar image server process. The extracted target data (plot) is then the output to the tracking and various alarm processing. The tracker process shall provide the function of automatic tracking, based on extracted target data, tracked target data such as position, speed, course, alarm condition, etc. are output to multi-sensor integrated processor in control center through data communication link. The radar image server shall include the radar video input unit that converts the radar video signal from analogue to digital in real time and stores this in the memory. It shall perform data compression of the radar video data stored in the memory and transmits them to each display in the control center and monitor site via data communication link such as wired or wireless LAN system.

#### **Main Functions:**

- a) High video bandwidth processing
- b) Supreme resolution in range and azimuth raw radar video processing with precise amplitude resolution
- c) Correlation in range, azimuth and time, for improved detection performance
- d) Plot extracting for Target Tracking
- e) Automatic tracking function
- f) Receiver blanking to eliminate undesired land clutter
- g) Land masking function for undesired tracking area
- h) Power Control of Transmitter-Receiver and radar antenna

#### **Specifications**

- a) Factory type computer
- b) Operating System: Windows 10 64bit or better
- c) Processor: 3.40GHz, 6MB Cache, 2400MHz or better
- d) Memory: 8GB or better

	<p>▪ <b>Service Display</b></p> <p>The service display shall display the radar image and radar-control operation for maintaining a radar antenna, radar transmitter-receiver and radar data processor in the radar site.</p> <p><b>Main Functions</b></p> <p>a) Set-up and configuration of local radar system</p> <p>b) Maintenance console</p> <p><b>Design Features</b></p> <p>a) Electronic Navigational Chart (ENC): Official sea chart digitized by the supplier and approved by the National Mapping Resources and Information Authority (NAMRIA), IMO-IHO Standard S.57/S63 (ENC)</p> <p>b) The display provides the overview of the complete surveillance of the radar station covered area.</p> <p>c) Zoom: With zoom in - zoom out support</p> <p><b>Specification (Minimum)</b></p> <p>a) Operating System: Windows 10 Pro for Workstations (64bit) or better</p> <p>b) Processor: 3.6GHz, 4core, 8.25MB, 2666MHz or better</p> <p>c) Memory: 16GB or better</p> <p>d) Storage: 1TB HDD (RAID 1) or better</p> <p>e) Standard components: Keyboard, mouse, Optical drive or better</p> <p>f) Display: One (1) 24 inch widescreen LED display</p> <p>▪ <b>Multi-sensor Integrated Processor</b></p> <p>The multi-sensor integrated processor shall receive the tracked target data and AIS target data from the remote sensor station, converting the coordinates of radar site into system coordinates, correlating among radar track data and AIS track data to unify tracking data and smoothing the position, speed, course, and so on of the unified tracked data.</p>	
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	<p>The radar interface unit shall receive the control data via data communication link system from the VTS Operation Display in the control center and controls operations of the radar equipment such as radar antenna, transmitter-receiver, waveguide changeover, etc.</p> <p><b>Main Functions</b></p> <ul style="list-style-type: none"> <li>a) Central track management with multi-sensor track fusion for radar and AIS tracks</li> <li>b) Comprehensive track monitoring on area surveillance, collision assessment and speed monitoring and with recording and playback processor</li> <li>c) Central diagnostic functions from system status and fault localization</li> </ul> <p><b>Design Features</b></p> <ul style="list-style-type: none"> <li>a) High speed operating system</li> <li>b) Traffic handling capacity: 2000 targets at any one time</li> <li>c) Standardized interfaces for system-wide communication</li> <li>d) Hardware components are of commercial high standard</li> </ul> <p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>a) Operating System: Windows 10 Pro for Workstations (64bit) or better</li> <li>b) Processor: 3.6GHz, 4core, 8.25MB, 2666MHz or better</li> <li>c) Memory: 16GB or better</li> <li>d) Storage: 1TB HDD (RAID 1) or better</li> <li>e) Standard components: Keyboard, mouse, Optical drive</li> <li>f) Display: One (1) 24 inch widescreen LED display <ul style="list-style-type: none"> <li>▪ <b>Multi-Function Console (VTMS Operator Console)</b></li> </ul> </li> </ul> <p>The Multi-Function console shall be the use as the main user interface to VTMS and shall consist of 3 sets traffic</p>	
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	<p>display monitor. The traffic display shall display the radar raw image, radar tracking target, AIS target from tracking system, and indicates them with electronic chart on color display. They also called VTMS Operator Console</p> <p><b>Main Functions</b></p> <ul style="list-style-type: none"> <li>a) Main user interface of the operator to the VTMS</li> <li>b) Main user interface to the VTMS for the operator or VTMS Supervisor</li> <li>c) Control and monitor VTMS equipment such as radar, and CCTV</li> <li>d) Monitor Display radar and AIS targets, meteorological data and CCTV</li> <li>e) Also known as VTMS Operator Console</li> </ul> <p><b>Design Features</b></p> <ul style="list-style-type: none"> <li>a) Electronic Navigational Chart (ENC): Official sea chart digitized by the supplier and approved by the national Mapping Resources and Information Authority (NAMRIA), IMO-IHO Standard S.57/S.63 (ENC)</li> <li>b) Display shall provide the overview of the complete surveillance on VTMS covered areas of the subject ports</li> <li>c) Operator shall select color and shading under ergonomics considerations</li> <li>d) The Operator shall be able to edit, except the ENC, existing symbols and add an almost 300 of new symbols</li> <li>e) Chart related Objects: Possibility to display objects based on S.57.</li> <li>f) Zoom: With zoom in-zoom out support</li> <li>g) Speed vectors: Operator shall select tracks for showing the speed vectors and measured course</li> <li>h) Speed monitoring: The system shall be capable of monitoring track speed. A warning shall be displayed if a vessel violates speed limit.</li> <li>i) Closest Point of Approach (CPA): CPA (0.2 nautical miles) shall be shown and the Time (5 minutes) to reach</li> </ul>	
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	<p>CPA (TCPA) of two tracks or one track and any fixed point which will be subject to change.</p> <p><b>Display item:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Radar raw video, radar tracked target,</li> <li><input type="checkbox"/> AIS target, Radar/AIS integrated target,</li> <li><input type="checkbox"/> Electronic chart, Tracking area, Alarm area,</li> <li><input type="checkbox"/> Range mark, L/L line, EBL/VRM, System data</li> <li><input type="checkbox"/> Operation menu, Radar control window,</li> </ul> <p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>a) Operating System: Windows 10 Pro for workstations (64bit) or better</li> <li>b) Processor: 3.6GHz, 4core, 8.25MB, 2666MHz or better</li> <li>c) Memory: 16GB or better</li> <li>d) Storage: 1TB HDD (RAID 1) or better</li> <li>e) Standard components: Keyboard, mouse, Optical drive</li> <li>f) Display: Three (3) 24 inch widescreen LED display <ul style="list-style-type: none"> <li>▪ <b>Large Display Console</b></li> </ul> </li> </ul> <p>The Large Display Console shall have the same function of Multi-Function Console and shall serve as the back-up operator console. This shall be used by VTMS operator supervisor for traffic without interrupting the VTMS operator. VTMS traffic display shall also be viewed on the large display.</p> <p>Large Display Console shall be installed also at PPA Port Manager Office to monitor the VTMS traffic.</p> <p>Main Functions (same as Multi-Function Console)</p> <ul style="list-style-type: none"> <li>a) Back-up console for VTMS multi-function console</li> <li>b) Main user interface to the VTMS for the operator or VTMS Supervisor</li> <li>c) Control and monitor VTMS equipment such as radar, and CCTV</li> </ul>	
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	<p>d) Monitor Display radar and AIS targets, meteorological data and CCTV</p> <p><b>Design Features</b></p> <p>a) Electronic Navigational Chart (ENC): Official sea chart digitized by the supplier and approved by the National Mapping Resources and Information Authority (NAMRIA), IMO-IHO Standard S.57/S.63 (ENC)</p> <p>b) Display shall provide the overview of the complete surveillance on VTMS covered areas of the subject ports</p> <p>c) Operator shall select color and shading under ergonomics considerations</p> <p>d) The Operator shall be able to edit, except the ENC, existing symbols and add an almost 300 of new symbols</p> <p>e) Chart related Objects: Possibility to display objects based on S.57.</p> <p>f) Zoom: With zoom in-zoom out support</p> <p>g) Speed vectors: Operator shall select tracks for showing the speed vectors and measured course</p> <p>h) Speed monitoring: The system shall be capable of monitoring track speed. A warning shall be displayed if a vessel violates speed limit.</p> <p>i) Closest Point of Approach (CPA): CPA (0.2 nautical miles) shall be shown and the Time (5 minutes) to reach CPA (TCPA) of two tracks or one track and any fixed point which will be subject to change.</p> <p><b>Specifications</b></p> <p>a) Operating System: Windows 10 Pro for workstations (64bit) or better</p> <p>b) Processor: 3.6GHz, 4core, 8.25MB, 2666MHz or better</p> <p>c) Memory: 16GB or better</p> <p>d) Storage: 1TB HDD (RAID 1) or better</p> <p>e) Standard components: Keyboard, mouse, Optical drive</p>	
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	<p>f) Display: One (1) 24-inch widescreen LED display</p> <p>g) Extended Display to one (1) 55 inch widescreen LED Display</p> <ul style="list-style-type: none"> <li>▪ <b>Recording and playback processor (record/replay)</b></li> </ul> <p>Recording and playback processor shall record the vessel movements monitored by radar, AIS. It shall also record the VHF voice communications exchange between vessels and VTS operator. It shall a function the playback the recorded data.</p> <p><b>Main Functions</b></p> <ul style="list-style-type: none"> <li>a) Records and playback track target data (radar and/or AIS)</li> <li>b) Records and playback VHF voice communications audio data</li> <li>c) Operation Log</li> <li>d) Can be recorded to a specific date and time in a media device and be able to playback in a unique multimedia player (where the saved data format can only be played)</li> </ul> <p><b>Design Features</b></p> <ul style="list-style-type: none"> <li>a) Fully synchronous multimedia data logging including radar images, track data, track alarms, VHF voice communication, remote sensors data and system alarms.</li> <li>b) Full radar recording with total operational range independent from operator console.</li> <li>c) The data to be recorded as follows. <ul style="list-style-type: none"> <li>i. Display screen image of MFC (multi-function console)</li> <li>ii. Radar/AIS tracked target</li> <li>iii. AIS transmitting and receiving message</li> <li>iv. Warning information</li> <li>v. Operation on all multi-function consoles</li> <li>vi. VHF communication voice, etc.</li> </ul> </li> </ul>	
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	<p>d) Archiving for five (5) year worth of data to external HDD</p> <p><b>Specifications</b></p> <p>a) Operating System: Windows 10 Pro for Workstations (64bit) or better</p> <p>b) Processor: 3.6GHz, 4core, 8.25MB, 2666MHz or better</p> <p>c) Memory: 16GB or better</p> <p>d) Storage: 1TB HDD (RAID 1) or better</p> <p>e) Standard components: Keyboard, mouse, Optical drive</p> <p>f) Display: One (1) 24 inch widescreen LED display</p> <ul style="list-style-type: none"> <li>▪ <b>Database Server</b></li> </ul> <p><b>Main Functions</b></p> <p>a) Store vessel information, voyage related information i.e., Estimated Time of Arrival (ETA), Estimated Time of Departure (ETD), Actual Time of Arrival (ATA), Actual time of Departure (ATD), and other ship movement</p> <p>b) Port facilities management, berth management, pilot management</p> <p>c) Reporting statistics</p> <p><b>Design Features</b></p> <p>a) Redundant configuration for a robust database system</p> <p>b) Shall be compatible to the existing upgraded database system of VTMS MANILA and VTMS Batangas</p> <p>c) Shall be compatible to the existing VTMS Central database server at PPA CMIS VTMS monitoring at PPA Head Office.</p> <p>d) Shall exchange and synchronize data to VTMS Central database server at PPA CMIS VTMS monitoring at PPA Head Office.</p> <p><b>Specifications</b></p> <p>a) 4th Gen or the latest generation of processors</p>	
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	<p>b) Operating System: Windows Server 2019 or latest version</p> <p>c) Memory: 16GB or more</p> <p>d) Storage: 1TB or more, RAID1 or better</p> <p>e) Standard components: Keyboard, mouse, Optical drive</p> <ul style="list-style-type: none"> <li>▪ <b>Database Terminal</b></li> </ul> <p><b>Main Functions</b></p> <p>a) Shall provide with user interface to view vessel data, view existing vessel data and search for a vessel, by vessel name, call-sign or country. The search criteria will allow the use of wildcards</p> <p>b) Extended vessel detailed identification using own or imported ship data bases, e.g. Lloyds</p> <p>c) View traffic scheduling (ship's arrival and departure, ETA and ETD) and reporting</p> <p>d) View Destination: Port, anchorage or berth area, cargo and passenger information (cargo and passenger manifests)</p> <p>e) View Hazardous goods (IMDG) coding</p> <p>f) Encode (Add/Edit/Update) vessels information and voyage related activities</p> <p>g) Oracle System (latest version)</p> <p>h) Searching function for anchorage, berth and historical data</p> <p><b>Design Features</b></p> <p>a) Easy to understand user interface</p> <p>b) Compatible with the existing upgraded database of VTMS Manila and Batangas</p> <p>c) Compatible and can be integrated with iPORTS</p> <p>d) Can generate Statistical Reports and other reporting format to be determined by PPA</p> <p><b>Specifications</b></p>	
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	<p>a) Operating System: Windows 10 Pro for Workstations (64bit) or better</p> <p>b) Processor: 3.6GHz, 4core, 8.25MB, 2666MHz or better</p> <p>c) Memory: 16GB or better</p> <p>d) Storage: 1TB HDD (RAID 1) or better</p> <p>e) Standard components: Keyboard, mouse, Optical drive</p> <p>f) Display: One (1) 24 inch widescreen LED display</p> <ul style="list-style-type: none"> <li>▪ <b>VTMS Data Server</b></li> </ul> <p><b>Main Function</b></p> <p>Forward the Radar and AIS target data from Multi-sensor integrated Processor (MIP) to VTMS Central Server</p> <p><b>Design Features</b></p> <p>Must be compatible and able to communicate with the existing VTMS Data Server at PPA CMIS</p> <p><b>Specifications</b></p> <p>a) Operating System: Windows 10 Pro for Workstations (64bit) or better</p> <p>b) Processor: 3.6GHz, 4core, 8.25MB, 2666MHz or better</p> <p>c) Memory: 16GB or better</p> <p>d) Storage: 1TB HDD (RAID 1) or better</p> <p>e) Standard components: Keyboard, mouse, Optical drive</p> <p>f) Display: One (1) 24 inch widescreen LED display</p> <ul style="list-style-type: none"> <li>▪ <b>Resource Management System</b></li> </ul> <p>Resource Management System (RMS) shall be provided to remotely monitor the operational condition each equipment of VTMS system. The operational status of equipment shall be continuously monitored and recorded to detect fault of equipment and VTMS system for ease of maintenance.</p>	
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	<p>The Resource management System shall monitor the status of connectivity of all equipment and network devices of the VTMS system.</p> <p><b>Main Functions</b></p> <ul style="list-style-type: none"> <li>a) Monitor network status connection of all VTMS network equipment</li> <li>b) Provides the Monitoring of VTMS equipment such as radar, VHF radio, AIS System, CCTV system</li> <li>c) Shall provide the logging function such as operation log, event log and trace log</li> </ul> <p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>a) Operating System: Windows 10 Pro for Workstations (64bit) or better</li> <li>b) Processor: 3.6GHz, 4core, 8.25MB, 2666MHz or better</li> <li>c) Memory: 16GB or better</li> <li>d) Storage: 1TB HDD (RAID 1) or better</li> <li>e) Standard components: Keyboard, mouse, Optical drive</li> <li>f) Display: One (1) 24 inch widescreen LED display</li> </ul> <p>▪ <b>Automatic Identification System (AIS) Base Station System Dual Transponder</b></p> <p>The information supplied by the AIS transponder installed on ships shall be displayed on the traffic displays at the Operators' Console in graphical and text form for automatic identification of such ships.</p> <p><b>Main Functions</b></p> <ul style="list-style-type: none"> <li>a) Automatically receives AIS information from AIS-equipped vessels</li> <li>b) Transmits messages, AIS Base station identification and position to all AIS equipped vessels</li> <li>c) Interfaces with the Multi-sensor integrated processor</li> </ul> <p><b>Design Features</b></p>	
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	<p>a) Provided with two (2) transponders and one (1) base station which are housed in one (1) unit</p> <p>b) Fully automatic and broadcast capable.</p> <p>c) Fully integrated into the VTMS.</p> <p>d) Able to display on the monitor the name of the vessel and speed.</p> <p>e) Hot Standby with redundancy control</p> <p>f) Includes VHF antenna, GPS Antenna, Coaxial arrester and Coaxial cables.</p> <p>g) IP Based</p> <p>h) Rack mount</p> <p><b>Specifications (minimum)</b></p> <p>a) with dual transponder</p> <p>b) Hot standby, redundancy control</p> <p>c) Frequencies: 156.025 to 162.025MHz</p> <p>d) Default Channels</p> <p style="padding-left: 40px;">AIS1: CH87B (181.975 MHz)</p> <p style="padding-left: 40px;">AIS2: CH88B (182.025 MHz)</p> <p>e) Type of emission: F1D</p> <p>f) Type of Modulation: GMSK, 9600bps</p> <p>g) Output Power: 12.5W2W + 20%</p> <p>h) Sensitivity: 20% PER for -107d8m(25kHz)</p> <p>i) Connectivity: Ethernet</p> <p>j) Includes one set of VHF antenna, GPS Antenna, Coaxial arrester, duplexer and Coaxial cables and connectors per AIS Transponder</p> <p>▪ <b>VHF Transceiver (Base Station)</b></p> <p>VHF transceivers for the VHF communication system shall be the communication medium between the VTMS and the vessels within the coverage area and shall operate on the international Maritime Channels. The VTMS</p>	
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	<p>operator shall be able to switch to any desired operating channel from a CHF controller using a remote-control panel. The microprocessor-controlled frequency synthesizer allows each multi-channel transceiver to select any desired channel frequency.</p> <p>The VHF Transceiver shall be remotely operated via software from the VHF controller. VHF Transceiver shall consist of transceiver, duplexer, arrester and antenna.</p> <p>Two (2) sets of VHF Transceiver shall be installed on each port or VTMS center.</p> <p><b>Main Functions</b></p> <p>a) Voice communications to vessels in the VHF Marine Band</p> <p><b>Design Features</b></p> <p>a) Full remote control of all transceiver functions</p> <p>b) Full multi-channel capabilities based on ITU-R M. 1084-4</p> <p>c) Design to be installed in Coast Station for the radio communication in accordance with Radio Regulations recommended by the ITU.</p> <p>d) Shall operate on international maritime channel</p> <p>e) Includes antenna, Coaxial arrester, duplexer and Coaxial cables</p> <p>f) IP Based</p> <p>g) Rack mount</p> <p><b>Specifications</b></p> <p>a) Design to be installed in Coast Station for the radio communication in accordance to Radio Regulations recommended by the ITU.</p> <p>b) Output Power: 50W<math>\pm</math>10%</p> <p>c) Frequency Range: 156Mhz – 163 MHz</p> <p>d) No. of Private Channels: 6CH</p>	
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	<p>e) Antenna Impedance: 50 ohms</p> <p>f) Type of Emission: G3E (F3E-at 6dB / Octave pre-emphasis)</p> <p>g) Transmitter Frequency Oscillation: PLL frequency Synthesized</p> <p>h) Transmitter Frequency Tolerance: Within <math>\pm 1 \times 10^{-6}</math></p> <p>i) Transmitter Distortion: 3% or less</p> <p>j) Receiver Distortion: 5% or less</p> <p>k) Receiving System: Double Super heterodyne</p> <p>l) Receiver Local Oscillation: PLL frequency Synthesized</p> <p>m) External AF output impedance: 600 ohms</p> <p>n) Power Supply: 85-264VAC, 50/60Hz</p> <p>o) Includes antenna, Coaxial arrester, duplexer and Coaxial cables and connectors</p> <p>▪ <b>VHF Controller and CHF Server</b></p> <p>The VHF Controller or VHF Operator Console shall be the operation control software for VHF communication. The VHF Controller remotely controls the VHF transceiver with the TCP/IP interface through the Ethernet and adopts the VoIP technology for VHF communication. Therefore, the VHF Controller shall be able to easily connect to the VHF system. Headset and Footswitch are included in the VHF Controller (or wireless Bluetooth Headset, Wireless Microphone)</p> <p>The VHF Controller operates the VHF transceiver with the VHF Server. The VHF Server is management software for the VHF communication system.</p> <p><b>Main Functions</b></p> <p>a) Simple VHF transceiver control</p> <p>b) Receiving voice level indication</p> <p>c) Monitor setting function of receiving voice sound</p>	
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	<p>d) Alarm notification</p> <p><b>Design Features</b></p> <p>a) Select Communication channel</p> <p>b) Turn on and off squelch function and adjust squelch level</p> <p>c) Display receiving voice level of all VHF transceiver</p> <p>d) Select monitoring device from the speaker and/or the headset. Mute the monitoring sound individually</p> <p>e) Notify the alarm condition of the VHF transceiver immediately by alarm indication and alarm sound</p> <p>f) Display the detail condition of the VHF transceiver</p> <p>g) Display VHF transceiver channel used by another operator</p> <p><b>Specification for VHF Controller and VHF Server</b></p> <p>a) Operating System: Windows 10 Pro for Workstations (64bit) or better</p> <p>b) Processor: 3.6GHz, 4core, 8.25MB, 2666MHz or better</p> <p>c) Memory: 16GB or better</p> <p>d) Storage: 1TB HDD (Raid 1) or better</p> <p>e) Standard components: keyboard, mouse, Optical drive, One (1) Headset, One (1) Footswitch, One (1) Speaker</p> <p>f) Display: One (1) 15.6 inch LED touch display for VHF Controller</p> <p>g) Display: One (1) 24 inch widescreen LED display for VHF Server</p> <p>▪ <b>Closed Circuit Television (CCTV)</b></p> <p><b>Main Function</b></p> <p>a) View vessels for visual confirmation of targets</p>	
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	<p>b) Interface to Multi-sensor integrate Processor</p> <p>c) Shall be able to control on the Multi-functional Console or VTMS operator console / CCTV Display</p> <p><b>Design Features</b></p> <p>a) Pan / Tilt / Zoom controls</p> <p>b) Full-HD 1920x1080 60fps</p> <p>c) Auto-focus features</p> <p>d) Water proof enclosure IP68 or latest</p> <p>e) Color night vision (0.001 to 0.015 lx)</p> <p>f) Remote control from VTMS Control Center</p> <p><b>Specifications (minimum)</b></p> <p>a) Installation: Outdoor, waterproof housing, meets IP66</p> <p>b) Water and Dust Resistance: IP66</p> <p>c) Image Sensor: approximately 1/2.8 MOS</p> <p>d) Resolution: 2 mega pixel [16:9] (30/60 fps)</p> <p>e) Panning Range: Endless</p> <p>f) Tilt Range: -15°-195° (level-downward-level)</p> <p>g) Zoom Ratio: 36x optical or higher</p> <p>h) Operating Temperature: -50°C to +60°C</p> <p>i) Network Connectivity: 10Base-T / 100 Base-TX, RJ45 connector</p> <p>▪ <b>Network Video Recorder shall be install to record the video images of the CCTV</b></p> <p>a) 30 Days retention with the following configuration: (Encoding compression: H.265, FPS:30, Quality: Fine Quality, Resolution: Full HD/2MP/1080p/60fps)</p> <p>▪ <b>CCTV Monitor</b></p> <p><b>Main Functions</b></p>	
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	<ul style="list-style-type: none"> <li>a) Display CCTV Image</li> <li>b) Remote control of CCTV Camera</li> <li>c) Configuration/Maintenance of CCTV System</li> </ul> <p><b>Specifications (minimum)</b></p> <ul style="list-style-type: none"> <li>a) Operating System: Windows 10 Pro for Workstations (64bit) or better</li> <li>b) Processor: 3.8GHz, 4core, 8.25MB, 2666MHz or better</li> <li>c) Memory: 16GB or better</li> <li>d) Storage: 1TB HDD (Raid 1) or better</li> <li>e) Standard components: keyboard, mouse, Optical drive</li> <li>f) Display: One (1) 24 inch LED touch display</li> </ul> <ul style="list-style-type: none"> <li>▪ <b>Meteorological Sensors</b></li> </ul> <p>The meteorological sensor shall detect the local meteorological condition at site and shall be display at the VTMS control center.</p> <p><b>Main Functions</b></p> <ul style="list-style-type: none"> <li>a) Gather meteorological data</li> <li>b) Wind Speed</li> <li>c) Wind Direction</li> <li>d) Barometric Pressure</li> <li>e) Air Temperature</li> <li>f) Humidity</li> </ul> <p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>a) Wind Speed range 0 to 322km/h Accuracy <math>\pm 5\%</math></li> <li>b) Wind Direction range 1-360° Accuracy <math>\pm 3^\circ</math></li> <li>c) Barometric Pressure range 410 to 820mm Hg</li> </ul>	
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	<p>d) Air Temperature range: 0° to +60°C Accuracy <math>\pm 0.3^{\circ}\text{C}</math></p> <p>e) Humidity range 1 to 100% RH <math>\pm 2\%</math> Accuracy resolution 1%</p> <p>▪ <b>Meteorological Monitor Display</b></p> <p><b>Main Functions</b></p> <p>a) Display real time localized meteorological data/information of the port</p> <p>b) Display the following information:</p> <ul style="list-style-type: none"> <li>- Wind Speed</li> <li>- Wind Direction</li> <li>- Barometric Pressure</li> <li>- Air Temperature</li> <li>- Humidity</li> </ul> <p><b>Specifications (minimum)</b></p> <p>a) Processor: 3.6GHz, 6MB Cache, 2400 MHz or better</p> <p>b) Operating System: Windows 10 Pro or latest version</p> <p>c) Memory: 8GB or more</p> <p>d) Storage: 500GB or more</p> <p>e) Standard components: keyboard, mouse, Optical drive</p> <p>f) Display: One (1) 24 inch widescreen LED display</p> <p>▪ Printer</p> <p><b>Specifications</b></p> <p>a) Type: Inkjet, Print, Scan, Copy, Fax with ADF</p> <p>b) Resolution: 4800x2400 dpi</p> <p>c) Maximum Copy size: A3</p>	
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	<p>d) Paper handling Size: A3, A4, Legal, Letter</p> <p>e) Scanner Type: Flatbed</p> <p>f) Interface: USB, Ethernet, Wi-Fi, TCP/IPV4</p> <p>▪ <b>Large Display</b></p> <p>Two (2) set of large display shall be install for each VTMS Control center to display the VTMS Traffic and the CCTV images.</p> <p>One (1) Large Display shall be installed at the Office of the Port Manager to monitor the VTMS traffic.</p> <p><b>Specifications</b></p> <p>a) Type: Full HD LCD DISPLAY</p> <p>b) Screen size (diagonal): 55in</p> <p>c) Aspect Ratio: 16:9</p> <p>d) Connection Terminal: Serial, DVI-D, HDMI, PC IN</p> <p>e) Power Requirements: AC 220-240V 50/60 Hz</p> <p>▪ <b>Uninterrupted Power Supply</b></p> <p><b>Specifications</b></p> <p>a) Capacity: suitable to supply monitoring PC, Operator Console, RDP, AIS &amp; VHF Rack, Data base Server and others</p> <p>b) Capacity: 1KVA for work stations computers and 2.2kVA to 5KVA for servers. depend on the LOAD (should not exceed 33%)</p> <p>c) Input Voltage Window: 180-270VAC</p> <p>d) Phase: Single Phase</p> <p>e) Nominal Output Voltage: 230/230/240VACV</p> <p>f) Frequency: 60Hz</p> <p>g) Output Waveform: Pure Sine Wave</p> <p>h) Back-up time (Full Load): 3minutes <math>\pm</math> 15%</p>	
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	<p>i) Double conversion</p> <p>j) Hot swappable battery</p> <ul style="list-style-type: none"> <li>▪ <b>Fast Ethernet Switch</b></li> </ul> <p>Fast ethernet switch shall be provided for the interconnectivity of VTMS equipment and auxiliary network equipment.</p> <p><b>Specifications</b></p> <p>a) At least 16-ports 10/100 Mbps Fast Ethernet ports or better</p> <p>b) Full/Half-Duplex for Ethernet/Fast Ethernet speeds</p> <p>c) Input Voltage: 220/230VAC</p> <ul style="list-style-type: none"> <li>▪ <b>VOIP Telephone</b></li> </ul> <p>VOIP Telephone shall be used for voice communications within the VTMS center and to Port Manager Office and CMIS.</p> <p><b>Specifications</b></p> <p>a) Compatible with the existing VOIP Telephone at PPA CMIS VTS Monitoring Center.</p> <p>b) Protocol/Standard: record, SRV, NAPTR, DHCP, PPPoE, SSH, TFTP, NTP, STUN, SIMPLE, LLDP-MED, LDAP, TR-069, 802.1x, TLS, SRTP, CDP/SNMP/RTCP-XR</p> <p>c) Voice Codecs: Support for G.711, G.722 (wide-band), G.723, G.726-32, G.729 A/B, iLBC, in-band and out-of-band DTMF (In audio, RFC2833, SIP INFO), VAD, CNG, AEC, PLC, AJB, AGC</p> <ul style="list-style-type: none"> <li>▪ <b>VOIP Converter for VHF Radio</b></li> </ul> <p>VOIP Converter for VHF radio shall be installed with speaker at CMIS to monitor the Maritime VHF communication of VTMS Iloilo, Davao and Zamboanga.</p> <p><b>Specifications</b></p> <p>a) LAN Interface</p>	
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	<p>i. Interface: 10BASE-T/100BASE-TX x 1 with auto negotiation function</p> <p>Connector: RJ45</p> <p>ii. Protocol: IPv4, TCP, UDP, RTP, HTTP, FTP, Telnet, SNMP, IGMPV2 (for IP unicast and multicast)</p> <p>b) Analog Interface</p> <p>i. Interface: Analogue4W/2W x 1</p> <p>ii. Impedance: 600Ω</p> <p>iii. level – 30dBm to 0dBm</p> <p>iv. Coding Format: G.711μ-LAW</p> <p>Connector: Screwless terminal block (64kbps), G.726 (32kbps, 16kbps), G.729A CS-ACELP (8kbps), G.723.1 ACELP / MP-MLQ (5.3kbps, 6.3kbps)</p> <p>▪ <b>VPN ROUTER and FIREWALL</b></p> <p>The VPN Router and firewall shall be use to link up the VTMS System to PPA CMIS VTMS monitoring Center at PPA Head Office.</p> <p><b>Main Functions</b></p> <p>a) Allows network communications within the VPN environment</p> <p>b) Prevents unauthorized access from and to the network</p> <p><b>Specifications</b></p> <p>a) 100BASE-TX</p> <p>b) IP routing function</p> <p>c) Firewall: State full Packet inspection (SPI)</p> <p>d) MAC based control</p> <p>▪ <b>Communication link to VTMSCC</b></p> <p>The Communication link of the Office of the Port Manager and VTMSCC shall be established in order for the Port Manager to monitor the Vessel traffic data.</p>	
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	<p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>a) IP base link</li> <li>b) Reliable IP radio link or Fiber optic cable</li> </ul> <p>▪ <b>Video Wall at PPA CMIS VTMS Central Monitoring</b></p> <p>A 3x2 Video wall shall be installed at PPA CMIS VTMS Central Monitoring to Display VTMS traffic of each VTMS Center of each port including the existing VTMS Manila and Batangas.</p> <p><b>Main Function</b></p> <ul style="list-style-type: none"> <li>a) To display the several VTMS traffic</li> <li>b) Able to customize the lay-out of the screen for better viewing</li> </ul> <p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>c) Multi-monitor set-up 3x2 video wall</li> <li>d) Quality: Must support a 24/7 operation</li> <li>e) Extreme narrow-bezel (maximum of 1.7mm) design</li> <li>f) Size: At least 55 inches per panel</li> <li>g) Resolution: 1920 x 1080</li> <li>h) Signal interface (input) <ul style="list-style-type: none"> <li>i. At least 1 x Analog D-SUB, DVI-D, Display Port 1.2</li> <li>ii. At least 1 x HDMI 2.0</li> <li>iii. At least 1 x USB 2.0</li> </ul> </li> <li>i) With Mounting brackets and accessories</li> <li>j) With video wall controller to produce flexible screen lay-out</li> </ul> <p>▪ <b>Diesel Engine Generator</b></p> <p>Diesel Engine Generator shall be use as back-up power supply in the absence of commercial power</p>	
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	<p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>a) Phase: 3Phase</li> <li>b) Capacity: 75 KVA</li> <li>c) Power Factor: 0.8 or better</li> <li>d) Rated Speed: 1800rpm / 60Hz</li> <li>e) Fuel: Diesel</li> <li>f) Fuel Tank Capacity: 1000 liters (separate tank)</li> <li>g) With Automatic transfer switch</li> </ul> <p>▪ <b>Interconnectivity of VTMS Control Center to PPA CMIS VTMS Central Monitoring</b></p> <ul style="list-style-type: none"> <li>a) The winning bidder shall be able to interconnect the VTMS Control Center of VTMS Iloilo, Davao and Zamboanga to the PPA CMIS VTMS Central Monitoring center at PPA Head Office.</li> <li>b) Necessary modification, updates and reconfiguration of existing equipment at PPA CMIS shall be done by the winning bidder to achieve the following functionalities. <ul style="list-style-type: none"> <li>i. The existing Multi-function console at PPA CMIS shall be able to monitor the VTMS traffic data of VTMS Iloilo, Davao and Zamboanga including the VTMS traffic data from existing VTMS Manila and VTMS Batangas.</li> <li>ii. The Database server of VTMS Iloilo, Davao and Zamboanga shall be compatible and synchronized with the VTMS Central Data base at CMIS.</li> <li>iii. The VTMS traffic of VTMS Iloilo, Davao and Zamboanga including VHF communication shall be recorded to the existing Recording and Playback at CMIS shall be able to playback.</li> <li>iv. The existing Web server shall also accommodate the VTMS data from VTMS Iloilo, Davao and Zamboanga in order to monitor VTMS traffic and other information.</li> </ul> </li> </ul>	
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	<p>v. VHF voice communication of each Operator Console of VTMS Iloilo, Davao and Zamboanga shall be monitor at PPA CMIS.</p> <p>PPA shall provide the necessary connectivity services from existing telecommunication company for the connectivity of VTMS Iloilo, Davao and Zamboanga to PPA CMIS VTMS Central monitoring.</p>	
	<p><b>PROVISIONS, DESIGN/SPECIFICATIONS AND PROFILE OF THE CONTROL CENTER</b></p> <p>The proposed VTMS Control Center shall be designed considering the available lot within the port area. To minimize the land use for Control Center, a four (4) storey building shall be constructed with 4-legged self-supporting tower on top.</p> <ul style="list-style-type: none"> <li>• Architectural: <ul style="list-style-type: none"> <li>▪ Venetian Blinds shall be provided for Glass walls.</li> <li>▪ Water-Proofing Membrane for the Roof Deck and Comfort Rooms (CR).</li> <li>▪ Housing for the Generator shall be provided with steel door with heavy duty padlock and hinges.</li> <li>▪ Provide Steel Ladder as Fire escape for all floors</li> <li>▪ Provide Steel veranda around the outside of the Operation room</li> <li>▪ Floor tile finish for all floors except for the generator room. Operation room shall be raised flooring.</li> <li>▪ Concrete walls to be painted applying three (3) coatings.</li> <li>▪ Concrete stairways with stainless pipe railings from ground floor to roof deck.</li> <li>▪ Profile and floor area of the Control Center shall be approved by PPA.</li> <li>▪ Aluminum window framing with 6mm thick clear glass and 12mm diameter bar grills for all windows</li> <li>▪ Six (6) mm thick hardiplex ceiling board with 50mm x 50mm good lumber ceiling joist for all ceilings including the generator house, except for the electronic room.</li> <li>▪ Operation room shall have one (1) inch thick glass walls, panel type. Height of the glass</li> </ul> </li> </ul>	

	<p>walls shall be approximately 1.6 mounted on a concrete wall of one (1) meter high.</p> <ul style="list-style-type: none"> <li>▪ 3rd floor shall have an open space on all sides of about 1 meter from the wall with 1.5 meter high concrete parapet with stainless pipe resting on top with a door as access.</li> <li>▪ Roof deck shall be enclosed with a 1.5 meter concrete parapet</li> <li>▪ Panel door complete with hinges and knobs and 150mm x 50mm door jamb made of yakal or equivalent shall be provided.</li> <li>▪ All trenches and the like shall be sprayed with Termite protection at a rate specified on the manufacturers manual.</li> <li>▪ An elevated raised access flooring shall be provided for the 3rd floor (Operation Room) in order to accommodate communication and power cables.</li> <li>▪ Binocular, Fax machine, Rectangular Table with Six (6) chairs and Four (4) chairs for operators shall be provided.</li> </ul> <p>• <b>Civil Works</b></p> <ul style="list-style-type: none"> <li>▪ Concrete for structural parts or members such as deck or floor slabs, beams, pile caps, curtain walls and any other part of the Control Center and the R.C. piles shall develop a minimum 28-day compressive cylinder strength of 4,000 psi.</li> <li>▪ All bar reinforcement shall be deformed bars complying with ASTM 615. Grade 40 for all structural members having a characteristic strength (fy) not less than 276N/mm<sup>2</sup>.</li> <li>▪ Number of Pile and size and lengths shall be based on output of structural design.</li> <li>▪ Test pile with a length of twenty-five (25) meters shall be driven for each port prior to casting of regular piles in order to better understand the soil behavior of the proposed location.</li> <li>▪ Four (4) inches or one hundred (100) mm thick Concrete Hollow Blocks (CHB) plastered with plain cement 25mm thick, with 10mm diameter vertical and horizontal bars.</li> <li>▪ Steel towers resting on the roof deck of the 4th floor which shall be made of corrosion resistant, high strength hot dip galvanized steel and painted according to the standard set by</li> </ul>	
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the Civil Aviation Authority of the Philippines (CAAP).

- Bolts and Anchor Bolts for the steel tower shall be high strength bolts combined with shear and tension of  $280 - 1.8 f_v \leq 303 \text{ mpa}$ .
- Perimeter cyclone security fence with a height of two (2) meters and is two (2) meters away from the control center.
- All structural steel shall conform to the ASTM A 36  $F_y = 344 \text{ mpa}$ .
- Welding works shall conform to American Welding Society (AWS).
- Structural Works shall conform to the latest National Structural Code of the Philippines.

• **Electrical Works**

- Electrical works and Fire alarm system shall conform to the latest Philippine Electrical Code.
- Provision Obstruction light, lightning arrester and grounding system
- Provision Transient Voltage Surge Suppressor (TVSS)
- Inter-Office communication equipment in all floors shall be provided

• **Sanitary Works**

- All plumbing and sanitary works shall conform to the latest National Plumbing Code of the Philippines.
- Comfort rooms shall be provided at the 1st floor & 2nd floor.
- Provide a septic vault with a dimension of  $W=2.5\text{m} \times L=4.5\text{m} \times H=2.5\text{m}$ .
- Water sprinkler system for all floors.

• **Mechanical Works**

- One (1) unit Diesel Generator Set, 75KVA Capacity with separate fuel tank capacity of 1000 liters.
- Air-Condition Unit

	Split Type (2 Hp)	Split Type/Floor Standing (5 Hp)
1 <sup>st</sup> Floor	1	
2 <sup>nd</sup> Floor (Admin Office)	1	

	<table border="1"> <tr> <td>3<sup>rd</sup> Floor (Operation Room)</td><td>2 (back-up)</td><td>1</td></tr> <tr> <td>4<sup>th</sup> Floor (Equipment Room)</td><td>2</td><td></td></tr> </table>	3 <sup>rd</sup> Floor (Operation Room)	2 (back-up)	1	4 <sup>th</sup> Floor (Equipment Room)	2		
3 <sup>rd</sup> Floor (Operation Room)	2 (back-up)	1						
4 <sup>th</sup> Floor (Equipment Room)	2							
	<p><b>REQUIREMENT UNDER THE THREE (3) YEAR EXTENDED WARRANTY PERIOD WITH THE FIVE (5) YEAR MAINTENANCE PERIOD</b></p> <p>The three (3) year extended warranty period with the five (5) year maintenance period shall commence simultaneously after the issuance of the site acceptance certificate for the supply, installation, test commission and training.</p> <p>• <b>WARRANTY</b></p> <ul style="list-style-type: none"> <li>▪ The three (3) year extended warranty period is intended to fix &amp; repair any defects and failure of workmanship on the equipment to ensure a continuous VTMS Operation.</li> <li>▪ Extended warranty shall cover all workmanship, system parts, accessories, other materials and equipment and services shall be warranted by the winning bidder for three (3) years from the issuance of site acceptance certificate. The winning bidder shall be required to post a warranty bond in any acceptable form under the procurement law in order to assure that manufacturing defects will be corrected within the warranty period.</li> <li>▪ Extended warranty shall not cover on equipment damage or failure due to acts of nature including damage by typhoons and earthquakes, accidents, electrical mishaps, abuse or improper operations, damages cause by third party equipment modification without the consent of the qualified service provider and damages due to rodent attack and infestation by insects (cable being eaten by the rats, mice and etc.)</li> <li>▪ The winning bidder shall be required to conduct a maintenance services under the three (3) years extended warranty to ensure the continuous operation of the system and the supplied equipment at the VTMS Control Centers and</li> </ul>							

CMIS at a minimum of at least two (2) times a year during warranty period;

• **MAINTENANCE SERVICES**

The five (5) years Maintenance services shall include:

- The start of the effectivity of the five (5) years maintenance services shall commence on the date indicated on the certificate of completion for the installation, training, and site acceptance.
- Maintenance works on all parts and components in the VTMS Control Centers and CMIS at a minimum maintenance check of at least two (2) times a year;
- Emergency on-site corrective maintenance/repair due failure of equipment.
- Provide full technical support on a 24/7 basis on all issues and concerns resulting from technical difficulties, system malfunctions or minor troubleshooting.
- Prepare and submit regular maintenance reports containing the following:
  - a.) Schedule and progress of maintenance works (programmed and actual);
  - b.) Assessment report on vital parts and components.
- Exclusions:

The following are excluded from provision under the five (5) years maintenance services to be rendered by the winning bidder.

- a. Corrective maintenance on equipment damage or failure due to acts of nature including damage by typhoons and earthquakes, accidents, electrical mishaps, abuse or improper operations, damages cause by third party equipment modification without the consent of the qualified service provider and damages due to rodent attack and infestation by insects (cable being eaten by the rats, mice and etc.)

	<p>b. Support in terms of services from any third party supplied hardware or software that are not included under this Terms of Reference (TOR);</p> <p>c. Maintenance service that require rust removal, repainting and repairs on all steel tower structures, concrete tower structures including its street members.</p> <p>d. Maintenance services on air conditioning units, fire alarm system including sprinkler system, plumbing, water pump, drainage, receptacle outlets, lighting and cable/wirings or rough-ins related to electrical system.</p> <p>e. Maintenance services on the building and structures e.g. fence, lamp posts, gate other structures within the vicinity of station etc.</p> <p>f. Spare Units and consumables that are not included on the supplied goods.</p>	
	<p><b>OTHER DOCUMENTARY REQUIREMENTS (TECHNICAL, FINANCIAL AND LEGAL DOCUMENTS)</b></p> <p>The following technical, financial and legal documents and references together with other required documents shall be submitted:</p> <ul style="list-style-type: none"> <li>▪ The Bidder shall submit the company profile showing the company's line of business, experience, years of existence and list of officers. The manufacturer of the major VTMS equipment shall have a local office in the Philippines.</li> <li>▪ The bidder should have an experience to supply, install and commissioning of Vessel Traffic System in the Philippines. Bidders should provide proof of the completion certificate issued by their respective clients.</li> </ul> <p>Bidders and/or manufacturer must submit supply records of supplying the VTMS equipment with solid state radar transmitter/receiver in the Philippines, with at least two integrated remote radar stations with one control center during the last five (5) years from the date of submission and receipt of bids and supported with client certificate.</p> <ul style="list-style-type: none"> <li>▪ Bidder shall have their own local team of engineers and technicians especially trained on</li> </ul>	

VTMS radar operation and maintenance to facilitate the immediate repair and maintenance during the warranty period and thereafter.

The bidder shall submit the respective Bio-Data of at least two (2) registered electronics engineers with valid PRC license who are permanently detailed in the Philippines and must be regularly employed by the local duly registered office of the prospective bidder. The above registered electronics engineers must have an actual experience of not less than five (5) years in the installation and maintenance of VTMS Radars and must have certificate of training particularly for radar maintenance and operation issued by reputable radar manufacturer. Above engineers must be capable to conduct training to PPA Engineers and Operators/staff for the VTMS radar operation and maintenance. As proof, the bidder shall also submit certificate of employment of the two (2) Registered Electronics Engineers, together with their valid professional licenses or Certificate issued by PRC (Professional Regulation Commission).

- Guarantee must be given that the technical personnel shall be made available immediately upon receipt of a report on any technical problem encountered during the operation of the system within the warranty period.

- List of Manufactured VTMS Equipment

Major equipment for VTMS shall be supplied by a single manufacturer, consists of X-BAND Radar with Solid State Transmitter and receiver, Automatic Identification System (AIS) Base Station Dual Transponder and VHF Maritime Radio. Software integration of those equipment shall be done by the same manufacturer. This will be an advantage for an ease maintenance of the system and future hardware and firmware update that need constantly change due to the advances of technology.

The bidder shall submit the list of major equipment to be supplied in which at least four (4) of the major VTMS equipment (i.e. radar antenna, radar transmitter/receiver, AIS and VHF communication equipment) supported with equipment brochure, required for this project are



	<p>manufactured by a single manufacturer, including the related software to ensure that parts are compatible with the system.</p> <p>In addition to the requirement, the radar transmitter/receiver, AIS transponder and VHF communication equipment shall have Type Acceptance Certificate issued by the National Telecommunications Commission (NTC) to be submitted as part of the bid requirement. Non-Submission of the said Type of Acceptance certificate will declare the bidder fail or disqualify.</p> <ul style="list-style-type: none"> <li>▪ Letter of Authorization from the Equipment Manufacturers</li> </ul> <p>In the case of a bidder who offers to supply and install major VTMS radar items of supply under the project that the bidder did not manufacture or otherwise produce, the bidder shall provide/submit in his bid proposal a Letter of Authorization from the equipment manufacturer, showing that the Bidder has been duly authorized by the equipment manufacturer and duly authenticated by the Philippine consulate at the manufacturer's country of origin.</p> <ul style="list-style-type: none"> <li>▪ The bidder shall submit certificate that the company/supplier is in existence as a business entity supplying VTMS for at least five (5) years in the Philippines.</li> <li>▪ The bidder shall submit a guarantee letter stating that the Manufacturer's Engineer shall be made available immediately within forty-eight (48) hours upon receipt of a report on any technical problem encountered during the operation of the system within the warranty period and thereafter.</li> <li>▪ The bidder shall submit a certification of after-sales support and a guarantee stating the availability of spare parts within the next 10 years for major VTMS equipment (i.e. radar equipment AIS &amp; VHF maritime radio).</li> <li>▪ Bar Chart showing the schedule of monthly activities that include the schedule of production, delivery and installation of VTMS equipment, training for Operators, construction of Control Center and other related activities, all of which shall</li> </ul>	
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	<p>not exceed fifteen (15) months from receipt of the Notice to Proceed.</p> <ul style="list-style-type: none"> <li>▪ Brochures, leaflets or literatures/technical document of the following equipment, electronic devices and components to be supplied should be provided in English: <ul style="list-style-type: none"> <li>a. Radar antenna</li> <li>b. Solid state radar transmitter/receiver</li> <li>c. Radar Track/Radar Processor</li> <li>d. CCTV camera</li> <li>e. Automatic Identification System (Base Station)</li> <li>f. Meteorological Sensor</li> <li>g. VHF Communication Equipment</li> <li>h. Multi-sensor Integrated Processor</li> </ul> </li> </ul>	
	Compliance with the VTMS BLOCK DIAGRAM for the Ports of Iloilo, Davao and Zamboanga as shown in Annex "A" of the Terms of Reference (TOR).	
	Compliance with the Profile of the VTMS Control Center for the Ports of Iloilo, Davao and Zamboanga as shown in Annex "B" of the TOR.	
	Submission of the duly accomplished Summary of Bill of Quantities and the Bill of Quantities for the Ports of Iloilo, Davao, Zamboanga, and PPA Central Monitoring Information System (Annex "C" of the TOR.	
	Compliance with the Schedule of Activities, attached as Annex "D" of the TOR.	