



CENTRAL WAREHOUSING CORPORATION

(A GOVT. OF INDIA UNDERTAKING)



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**Implementation of Warehouse
Management Solution At
Central Warehousing Corporation**

**Volume I : Scope
of work**

Central Warehousing Corporation

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Central Warehousing Corporation (CWC) intends to implement a Warehouse Management Solution(WMS) for the modernization and computerization of the operations of its warehouses. CWC intends to select and deploy a software solution for this purpose. This document has been prepared on the basis of available information in CWC and other publicly available documents which CWC believes to be reliable. The sole objective of this document (the Request for Proposal or the RFP) is to solicit Techno commercial offers from interested parties for taking part in the future process leading to selection of System Integrator for implementation of WMS. While this document has been prepared in good faith, no representation or warranty, express or implied, is or will be made, and no responsibility or liability will be accepted by CWC or any of their employees, advisors or agents as to or in relation to the accuracy or completeness of this document and any liability thereof is hereby expressly disclaimed. Interested Parties may carry out their own study/ analysis/ investigation as required before submitting their Techno commercial proposals.

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2 Introduction

- 1.1 Central Warehousing Corporation (CWC), a Government of India enterprise, is one of the largest warehousing agencies in India with a turnover of Rs 1640 crores in FY 2015-16. It provides scientific storage and handling services for a wide range of products ranging from agricultural produce to other sophisticated industrial products. CWC also provides warehousing facilities for import/export cargo containers.
- 1.2 CWC caters to a diverse set of clients with its different kinds of warehouses such as food grain warehouses, industrial warehouses, custom bonded warehouses, container freight stations, inland clearance depots and air cargo complexes. As on 01stFebruary2017, CWC operates 436 warehouses across the country [1]. The corporate office is located at Delhi and has 18 regional offices across India.
- 1.3 CWC is a shareholder in all the 17 (Seventeen) State Warehousing Corporations. It has a subsidiary “Central Railside Warehouse Company Ltd” and has a joint venture company, NMCE. More such ventures are on the anvil.
- 1.4 CWC offers services in the area of clearing & forwarding, handling & transportation, procurement & distribution, disinfestations services, fumigation services and other ancillary activities. CWC also offers consultancy services/ training for the construction of warehousing infrastructure to different agencies. CWC has also started container rail transportation operation since 2009 from Loni to Jawaharlal Nehru Port (JNPT); this facility may further expand in other locations and routes. CWC employs more than 3600 trained personnel.
- 1.5 CWC has identified Information Technology as one of the key enablers in its modernization and productivity improvement drive and has decided to deploy integrated systems across the major functions of the organization to exploit the full potential of Information Technology. CWC has decided to implement a Warehouse Management Solution(WMS) solution which provides globally accepted best practices in the areas of Warehouse Management like receipts, stocking, Customer Billing, Quality Management, integration/ interface with various components/ systems.

3 Project Background

CWC is looking at modernizing its facilities and fine-tuning its operations to tackle emerging competition and increasing demands for sophisticated services. As part of the initiative, CWC intends to computerize the warehousing and logistics services offered at their warehouses spread across India. It will link all operational processes at its warehouses, and the decision making processes at the corporate and the regional offices.

CWC is looking for a system to primarily manage and streamline the operations at its warehouses including integration with FCI's Depot Online System. In addition, the system should be support seamlessly integrate with back end support functions in Financial Accounting, Human resource management, Payroll, etc. beside other stakeholders.

3.1 Project Objectives

The objectives of the ICT initiative at CWC are summarized below:

Operational Excellence

- i. To meet the changing needs of agriculture, trade, industry and other sectors by providing scientific warehousing and related infrastructural facilities
- ii. To introduce a system that expedites and streamlines order execution process at the warehouses
- iii. To eliminate redundant processes and to avoid multiple entries of data

Managerial Accounting and Decision-Making

- I. To establish real-time MIS system for prompt and effective decision- making
- II. To eliminate time delay between transactions and availability of information
- III. To keep track and measure the results of activities and operations

Customer Orientation and Enhanced Service Delivery

- i. To increase the visibility of the supply chain and to meet customer demand for information and service delivery
- ii. To make order status information available to clients on a real-time basis
- iii. To enhance the quality of integrated services offered to its clients
- iv. And finally, to build better reputation in the market for reliability and execution among its clients.

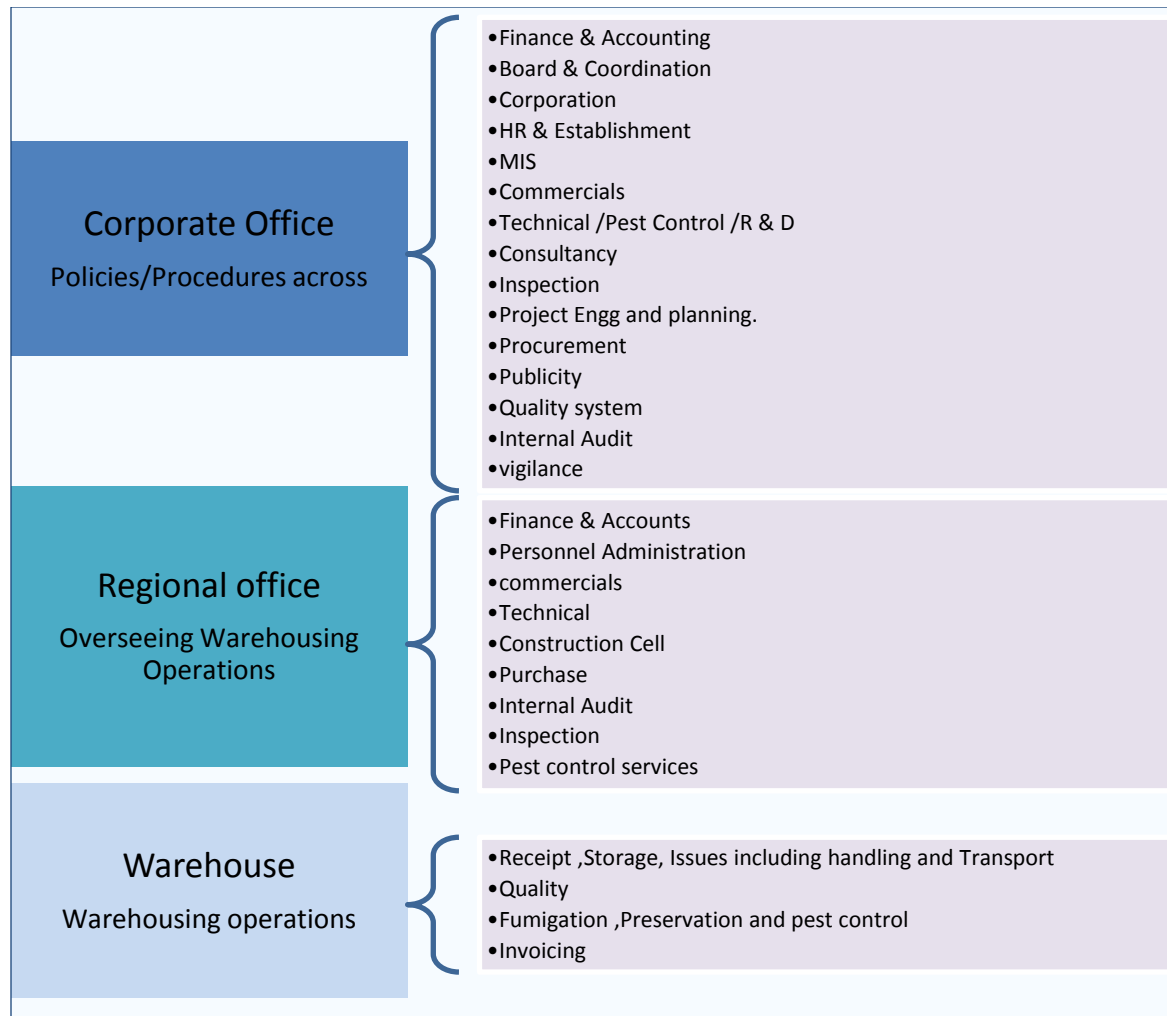
3.2 Highlights of WMS

- i. The solution would be a centralized warehouse management solution with all types of warehouses as a functionality.
- ii. Initial focus will be on “transaction automation” along with “limited collaboration” with external stakeholders through a portal.
- iii. Considering the infrastructure limitations of many remote locations, the solution should support multiple connectivity options like MPLS, Broadband, 2G/3G/4Genabled handheld devices/ tablets.
- iv. The solution would enable customers to view, book/reserve and make the payment online for the warehouse space.
- v. The necessary physical “automation” equipment like high-rise storage, automated guided vehicles, automated data collection (ADC), RFID, GPS would be considered in a subsequent phase after the implementation of the proposed solution and is currently not in scope of this assignment.

4 An Overview of CWC Operations

CWC has its Corporate Office in Delhi and 18 Regional Offices located in major state capitals of the country. Each Regional Office is a profit center whose accounts are consolidated at the Corporate Office. A Regional Office may be responsible for up to 50 warehouses. The divisions under Corporate Office are as under:

- Finance and accounts department
- Commercials department
- Projects department
- Technical division
- Pest control services
- R&D division
- Engineering and planning department
- Vigilance department
- Board and coordination department
- Corporation division
- Inspection division
- Publicity division
- HR& establishment
- Raj Bhasha
- Purchase department
- Internal audit department
- Quality systems
- Consultancy division
- MIS Division



CWC is mainly organized around Regional Offices (ROs) with extensive decentralization. ROs manage the day-to-day transactions and are responsible for the efficient operations of the warehouses under their control. Role of Corporate Office is mainly on Strategy (new Projects/services based on Market demands), Policy formulation and Budgetary Controls. In addition Consultancy services are handled from CO. Warehouses are pure “operational units” with all the support coming from ROs.

5 Proposed Solution Architecture

The proposed WMS needs to support multiple connectivity options as many warehouses of CWC are located in remote areas where availability of power as well as WAN connectivity is a major issue. Keep this in consideration following connectivity strategies are envisaged:

- i. The WMS will be hosted centrally in a secure cloud data center with all the users logging in through secure networks and provide Disaster as a Service. The IT infrastructure should be provided through Cloud Service Provider (CSP). The cloud data centre and disaster recovery centre shall be setup in two different seismic zones of India.
- ii. The WMS should have appropriate servers in high availability mode with load balancer beside security features such as firewall, IPS, SSL, Anti malware, encryption etc. to meet the service levels define in this RFP. The configuration of IT infrastructure should be commensurate with warehouses and users.
- iii. TheWMS to centrally manage the mobile devices like pushing of patches & version from central server and secure the data on device & on transmission to central server.
- iv. All the users of Corporate Office, Regional Offices and Warehouses will be access the WMS portal through the Internet/2G/3G/4G connectivity.
- v. In order to have business continuity, Disaster recovery as a solution as and when required to be provided as part of WMS.
- vi. External stakeholders will have “limited access” to the information pertaining to the specific user like space, stocks held by them and billing/account data, e-payment, etc . They would be accessing the external portal
- vii. The system shouldbe able to integrate with mail server for workflow/reports distribution
- viii. System to send important “alerts” via email, sms.

5.1 Integration / Interfaces

Following interfaces/integrations are envisaged as part of the proposed solution:

- i. Integration with mail server and interface with sms gateway

The WMS should be integrated with the e-mail solution of CWC for seamlessly mailing out reports/forms. The system should also have a functionality to interface with any SMS gateway.

- ii. The WMS should support Interface with Government/ subsidiaries of CWC and other Joint ventures of CWC as and when required.
- iii. FCI has taken an initiative to implement a Depot Online System across all the FCI and CWC depots (both owned and hired) in the country. The Depot Online system (DOS) will be installed in approximately 166 CWC warehouses across PAN India. The warehousing operations on these CWC depots shall be carried through FCIs DOS. The proposed WMS system should be integrated with the FCI DOS with a seamless interface to ensure FCI operations are being captured and corresponding MIS/Financial transactions are generated in the WMS. The process is to have a single point of data entry. The proposed WMS system should also integrate with existing financial accounting package at Regional offices & Corporate office. The system should support that along with the proposed GST and other taxes.
- iv. Integrate with weighbridges with option for manual operations at all warehouses

The system should be interfaced with the weighbridge to capture Gross & tare weights of the trucks with option for manual operations in case the weighbridge is not functioning at all warehouses. Each location may have a different model of weighbridge but the interface has to be generic model with only mapping of fields at each location as per the format of output from the weighbridge.
- v. Secure payment gateway for credit card/debit card/internet banking and any other widely accepted payment option as available from time to time. The one time setup cost to be borne by bidder and recurring cost on account of transactions shall be borne by CWC.
- vi. Integrate for other types of payment modes like NEFT/RTGS/ECS and any other widely accepted mode as available from time to time
- vii. The WMS should support Interface with proposed Warehousing Development and Regulatory Authority (WDRA) system
- viii. The WMS should support Interface with other stakeholders like Railways etc.

6 Scope of services

The scope of services will encompass the following:

6.1 System requirements study and system design

6.1.1 Preparation of the Project Plan and the Inception Report

- The system integrator (SI) shall prepare an Integrated Project Plan for the entire project that covers detailed tasks which are intended to be performed, as part of the project.
- The SI needs to prepare and submit an Inception Report, which will serve as the foundation document for all activities related to the project. Additionally, the Inception Report must cover the risks the SI anticipates and the plans they propose towards Risk mitigation.

6.1.2 Requirements Gathering and Analysis

- Indicative functional requirements have been identified. SI needs to perform actual requirement gathering. The functional requirement provided in this RFP is for the purpose of reference only. The SI is required to capture all possible and required functional requirements, pre go-live. The indicative Functional Requirements for this project is attached as ***Annexure I which spell out other indicative functional /non-functional requirements.***
- The SI needs to go through the document, and may consult with CWC whenever necessary, to obtain more details on the requirements of the project. The SI shall conduct an actual Requirements gathering and prepare an SRS document.
- The SI shall conduct a comprehensive discussion with CWC (or its representatives) and subsequent analysis to ensure that each of the requirements mentioned in the ***Annexure I*** of this RFP are covered in the requirements analysis they .
- Activities conducted as part of this task will result in the **“CWC-WMS Software Requirement Specifications” (SRS)** document, which shall detail the requirements of the complete solution up to the last detail. SRS document shall comply with the latest and most relevant IEEE standards.

6.1.3 Definition & Design

- Having conducted a comprehensive analysis of the requirements for the CWC-WMS, the SI would need to prepare elaborate system architecture and design documents for the CWC-WMS project.
- Build a complete audit trail of all transactions (add, update and delete) using transaction log reports, so that errors in data, intentional or otherwise, can be traced and reversed, throughout the project duration.
- The most appropriate level of security commensurate with the value to that function for which it is deployed must be chosen
- Access Controls must be provided to ensure that the databases are not tampered or modified by the system operators or database administrator.
- Implement data security to allow for changes in technology and business needs.
- The System Integrator shall be entirely responsible for the architecture of the system implemented to satisfy all features, functions and performance as described in this document including sizing of the required IT infrastructure in order to satisfy service levels as defined in this RFP. The System Integrator should ensure all possible and required improvements.
- The CWC-WMS design must be such as to require the minimal installation, if at all, at the user's end, besides the Internet Browser. The CWC-WMS system should be able to support all common browsers like Internet explorer, Mozilla, Chrome and mobile application on AnroidOS
- Plans for various types of testing and audit, which include user acceptance tests, integration test, Information security audit on application software in line with ISO-27001 guidelines through CERT-IN empanelled third party auditor.
- The SI would be responsible for making sure that all the above pre-requisites are adequately met.

SI is expected to prepare a detailed project charter which should include the detailed project plan, indicating all activities with resources required, their roles and responsibilities and time schedule of deliverables at the start of the project and submitted to CWC for approval.

6.2 IT infrastructure on cloud for WMS

- The System Integrator has to provide, configure, commission and maintain the required IT infrastructure on cloud service provider empanelled by DeitY, Govt. of India.
- The WMS should have appropriate servers in high availability mode with load balancer beside security features such as firewall, IPS, SSL, Anti malware, encryption etc. to meet the service levels define in this RFP. The configuration of IT infrastructure should be commensurate with warehouses and users.
- DR to be provided as a service
- DC and the DR should be in a different seismic zone in India.
- DC and DR should comply with at least Tier III standard and TIA-942 norms.
- The system integrator has to provide compliance undertaking for both DC & DR every year indicating the compliance to the Tier III standards. CWC may audit the facility to verify the compliance.
- The system integrator has to provide DR as a Service (DRaaS) considering all the application services being accessed from the DC should be accessed from DR in case of non availability of DC with only 20 % processing capability and 100 % storage .

6.2.1 Assessment, Provisioning and Installation of IT Infrastructure on cloud

Scope	Key elements
<p>Infrastructure as a service requirements & Finalization of BoM on cloud</p>	<p>SI shall perform a detailed assessment of WMS system requirements discussed in the RFP, the number of locations, users, transaction volumes and assess the Infrastructure requirements for operationalisation of the WMS system and to provide the services in conformance with the SLA. While assessing requirement of the IT infrastructure on cloudfor WMS system, SI shall ensure that the proposed infrastructure supports the necessary performance requirements.</p> <p>It is to be noted that the bidders are required to perform necessary sizing of IT infrastructure on cloud for implementation of WMS system and to maintain the performance of the systems in line with the SLAs provided in the RFP. However, the system proposed by bidders shall ensure scalability and performance requirements.</p> <p>The WMS should have appropriate servers in high availability mode with load balancer beside security features such as firewall, IPS, SSL, Anti</p>

Scope	Key elements
	<p>malware, encryption etc. to meet the service levels define in this RFP. The configuration of IT infrastructure should be commensurate with warehouses and users.</p> <p>During the entire duration of the project, if the performance of the system is affected on account of the hardware limitations on cloud , due to the rapid growth in the transaction volumes , the SI is required to update , upgrade &augment the infrastructureon cloud at no additional cost to CWC (For e.g. Additional servers, storage space etc) during entire project period.</p> <p>SI will need to make suitable arrangements on cloud for WMS web servers, registration of domain name, appropriate database, system softwareetcas applicable conforming to SLAs.</p>
<p>IT Infrastructure</p> <p>Installation, configuration, commissioning and maintenance on cloud during project period.</p>	<p>The SI shall be responsible for installation, configuration, commissioning and subsequent maintaining of entire IT infrastructure provided on cloud forWMS system at DC and DR site. As the IT infrastructure shall be provided through cloud service provider, SI , in order to optimize cost and time , may provide the services through cloud service provider.</p>

6.3 Supply, installation, configuration, integration, customization, deployment and testing of WMS solution

6.3.1 WMS solution

The system integrator will be responsible for installation, configuration, integration, Customization, deployment, Testing and maintaining during entire project period of:

- a. WMS application Warehousing Operations like (but not limited to) Receipts, Storage, Issues including Handling, Transport, Quality, Fumigation & Preservation, Invoicing, billing , collection , payments etc. as per brief scope stated at Annexure I .The WMS should be configured to have Management dashboards.Integration and interface as per scope of this RFP leveraging service oriented architecture
- b. At every stage of the deployment process, the different components of the CWC-WMS must get thoroughly tested to make it bug-free.
- c. SI should create all necessary master files for the CWC-WMS system.
- d. SI should create dashboard for CWC’s operational reporting purpose (like Warehouse capacity utilization, revenue generated, expenses incurred, vacant space etc.)

- e. Provision, Install, configure and implement any other component like database and related software, tools etc. as IT infrastructure as a service on cloud platform.
- f. The WMS should have appropriate servers in high availability mode with load balancer beside security features such as firewall, IPS, SSL, Anti malware, encryption etc. to meet the service levels define in this RFP. The configuration of IT infrastructure should be commensurate with warehouses and users.
- g. CWC desires to implement WMS solution to cater to around 1600 users of which 400 should be mobile app users covering app. 400 warehouses, which may increase or decrease during the project period. The tentative list of warehouses is given in **Table 3 of Annexure II**. SI therefore has to provide WMS to cater to additional warehouses of CWC during project period at no additional cost to CWC.

6.3.2 WMS Implementation and Rollout Services

SI will take responsibility of following:

- i. Supply WMS solution for CWC warehouses with unlimited users right for transaction, technical and system administration for the offered WMS product, which includes both web based and mobile application and accordingly, SI shall quote the license fees of the WMS solution.
- ii. Customize the WMS as per the scope of work define in Annexure I. SI needs to perform actual requirement gathering. The functional requirement provided in this RFP is for the purpose of reference only. The SI is required to capture all possible and required functional requirements, pre go-live. The indicative Functional Requirements for this project is attached as **Annexure I which spell out other indicative functional /non-functional requirements**.
- iii. Provide additional software, database, tools, accessories etc to meet scope of work, SLA and documentation. Tools and accessories shall be part of the offered solution.

The SI will be responsible for providing a full range of services in implementation of offered WMS product including integration and supporting the operation of the proposed solution during implementation. These services should include, but not be limited to, the following:-

6.3.2.1 Project charter

The detailed project charter as prepared and submitted by SI shall comprise of the following, but not limited to:

- Detailed project charter should include the detailed project plan, indicating all activities with resources required, their roles and responsibilities and time schedule of

deliverables will be required to be prepared at the start of the project and submitted to CWC for approval.

- The project charter should also contain brief project description, approach and methodology, milestones, project organization, roles and responsibilities, project risks and mitigation plans, dependencies etc.
- The project charter should include a detailed program for installing, customizing and implementing the WMS solution covered under this RFP. The program shall be in the form of a bar chart/master network identifying key phases in various stages of the project.
- The SI shall not change any member of the Project Team during the course of the project. However, in the unlikely event of a change being required, the procedure for replacement of the personnel as detailed in the draft agreement (Volume –III) shall be followed.

6.3.2.2 Configuration / customization of WMS

The SI shall be responsible for installation of WMS software, database, tools, and any other component (together referred as WMS solution) required for making the WMS solution successfully operational as per the requirements of CWC on cloud platform. The system is to be a single-instance, centralized installation servicing the entire organization. The COTS solution will be installed at the cloud Data Centre to be hosted by SI as part of this project.

Based on the approved business design, the SI will undertake the system configuration and customization. After completion of configuration / customization to the product, SI shall carry out a trial run. If the need arises and the result is not up to the expectation of CWC management, further reconfiguration will be done by the SI in order to close any gaps left in meeting the desired objective.

SI is required to undertake customization that may be needed in line with the changed, improved or specific business processes requirement prepared during Business Design phase of the COTS implementation. SI shall implement the changes as per the Business Design Report in order to achieve the desired functionality. However the same must be tested, accepted and approved by CWC.

SI needs to provide configuration, customization and installation reports to CWC. SI should follow disciplined approach for configuration and customization which should not restrict CWC for any future upgrades to its WMS solution. To this effect SI should follow a disciplined approach for configuration & customization of WMS solutions which will not stop CWC from future upgrades.

External users (Customers/vendors/ other visitors)		
1.	Indicative number of Customers/vendors / other visitors expected to access WMS to view vacant space, status of stock , status of bill , tariff , e-paymentetc	WMS to be sized by bidder based on various indicative data points provided in this RFP and taking into consideration around 2000 external users and 3600 internal users.
2.	Indicative increase in number of Customers/vendors / other visitors expected to access WMS to view vacant space, status of stock , status of bill , tariff , e-paymentetc	10% Year on Year growth

- The WMS solution portal must meet the W3C Specification.
- Where ever applicable the portal must be in line with standards published by Department of Information Technology (DIT), Gol. These can be accessed at <http://egovstandards.gov.in>
- The solution must comply with Guidelines for Indian Government Web Sites (<http://egovstandards.gov.in/guidelines/guidelines-for-indian-government-web-sites>)

6.4 Data digitization

SI will be responsible for creation of all location masters and its data including populating in WMS

6.4.1 Overall Scope of Data Migration

- The SI shall sign a non-disclosure agreement with CWC to protect the privacy of the information and data that is made available to SI during masters creation.
- CWC shall have the complete rights over the master data and the SI shall not possess the CWC data, partly or completely.
- The SI must take responsibility for parameter setting, entry of master data of warehouses ,and the transaction data etc. The responsibility of data formats preparation for data collection for the application system will lie with the SI.
- The SI must take responsibility for management of CWC's reconciliation of masters/converted/migrated data.
- Data shall be provided to the SI as is basis in the manual / electronic format as available. Any format change shall have to be done by the SI.
- It is clarified that the ownership of data shall at all times remain with the CWC and SI shall be responsible to maintain complete confidentiality of the same.
- A detail data conversion plan shall be prepared at the time of the project implementation by SI.

- The physical documents/ files of data from the respective warehouses would be handed over to the authorized representative of SI. After completion of the master data in WMS, the SI shall return the documents/ files / registers to the concerned CWC official.
- The SI must ensure that the physical records are not altered or tampered in any manner when documents / registers are under their possession.
- Data made available to the SI must be kept confidential and must not be taken outside the premises of CWC.

6.5 Training

- As part of this initiative, the SI would require to train batches of CWC staff & official
- Developing the training content - SI shall ensure that the training content is relevant to the target trainees depending upon the role played by them.
- The SI shall submit the training content to CWC for approval. It shall be submitted atleast 20 days in advance before the conduction of the training. CWC will review and provide comments to SI on the training content within 7 days of the submission of draft training content. SI shall incorporate and implement changes suggested by the CWC in training delivery and content.
- Prepare Training Schedule -A detailed training schedule will be prepared by SI after consultation and approval from the CWC. Any updation in the training schedule shall require approval by CWC at least 30 days before the conduction of training.

6.5.1 Training venue and other logistical arrangements

- a. The training venue for carrying out the trainings will be provided by CWCas per the table below.
- b. Cost of Travelling of participants for attending the training will be borne by CWC. However, the cost of trainer including TA, DA, staying charges, out of pocket charges etc provided by SI for conducting the training shall be borne by SI.
- c. SI is required to arrange for all equipment, software, hardware etc required for the training, at no cost to CWC.
- d. Providing Hard copies of training material to participants shall be responsibility of SI and the cost for the same must be included in the training costs as proposed by bidder in their proposal (submitted against this RFP).

6.5.2 Identification of Training Participants

CWC shall be responsible for identifying the participants for the training.

6.5.3 Circulating pre-training material

SI shall make adequate provision for circulating pre-training material to all the participants at least seven (7) days before the conduction of the training. The pre-training material may be circulated in electronic form or hard copy form.

6.5.4 Language for delivery of training

The prime mode of training delivery shall be English. SI shall provide trainers who are also conversant with Hindi as well as the regional language of the region where training is being delivered. This is required to enable the trainer to explain the application to the user in a simplified manner.

6.5.4.1 *‘Train the Trainer’ trainings*

SI will need to carry out train the trainer trainings as per the table below

For each location, SI should plan specific training calendar in such a fashion that the relevant groups are targeted, with not more than 20 participants per target group.

Region	Location	Type of office	address with pin-code	Training location (Y/N)	Number of resources to be trained at that location	Minimum number of days per training	Training civil infra to be provided by CWC (Y/N)	Desktop/LAN for training to be provided by CWC (Y/N)
Chennai	Chennai	RO	Thiruvalluvar illam,4&5,North Avenue,Sri Nagar Colony,Saidapet,Chennai 600015	Y	30	2	Yes	No
Delhi	Delhi	RO	Central Warehousing Corporation, 4/1 Siri Institutional Area, HauzKhas, New Delhi-110 016	Y	30	2	Yes	No
KOLKATA	KOLKATA	RO	CMC Building,Phase I ,6th Floor ,New Market Complex,15 N,NellieSenguptaSarani,Kolkata 700087	Y	30	2	Yes	No
Mumbai	Mumbai	RO	Address of Mumbai : RegionalL Office, Sector 20, Near APMC FruitMARKET , Vashi, Navi Mumbai - 400 703 STD CODE: 022 Phone : 27840888	Y	30	2	Yes	No

Training of master trainings will consist of atleast three segments:

- a. The first segment will be set of workshops covering effective presentation skills and coaching techniques and discussing the benefits and structure of the trainer model.
- b. The second segment will be the formal WMS training which will consist of all modules of WMS.
- c. The third segment will be a teach-back session where trained trainers will present course content and receive feedback regarding content, flow, and presentation techniques. This will also include a feedback session where trainers can provide feedback on the training materials, flow, comprehension level, and accuracy.

6.5.5 'Management Dashboard' trainings

This training will be for the senior management at CWC and how they can benefit from WMS and monitor various activities at CWC through WMS.

6.5.6 Training feedback (by CWC)

CWC shall also design a questionnaire for evaluating feedback of the trainings. This feedback will be carried out by CWC officials immediately after the training.

6.5.7 Computer Based Training (CBT) modules

In addition to the classroom training, SI shall develop CBT modules for CWC employees. CBT must involve training delivered through computers with self-instructions, screenshots, etc. The CBTs shall highlight the automated processes relevant for the stakeholders. The CBT modules shall be updated by SI as and when required.

6.6 Rollout including Onsite handholding support at each warehouse

The roll out should be done by manpower at each warehouse to include configuration of the desktop , hand held , application with the warehouse specific information, providing application training to the warehouse users and providing adequate hand holding support for 15 days at each warehouse to ensure going live and smooth transition to the new application system etc..Ensure the generation of all reports on-line through the implemented system after the go-live of each of the warehouses

The System integrator has to undertake the following activities with respect to the pilot and rollout of the application at each of the warehouse . System Integrator has to ensure adequate manpower to support all warehouses till the end of the roll out duration:

- i. Pilot of the application in identified model warehouses around 20 .
- ii. Stabilization of the application based on issues encountered and feedback obtained during pilot.
- iii. Installation of app and role-based configuration of the handheld devices & desktop.
- iv. Handholding of the application users for both handhelds and desktops.

- v. *Functional Handholding* – The System integrator shall provide handholding support to CWC’s staff of the WMS solution at each of the warehouse for 15 days . These staff will be identified by CWC exclusively for performing the functions.
- vi. Rollout of the application to all warehouses based on fulfilling the agreed acceptance criteria for go-live at individual warehouses.
- vii. Ensure the generation of reports on-line through the implemented system after the go-live of each of the warehouses.

The minimum qualification for the resources deployed for handholding is as follows

Name	Job description	Skill set
Handholding resource	<ul style="list-style-type: none"> • Providing onsite handholding services 	<ul style="list-style-type: none"> • Graduate in any discipline • Good knowledge of computer (MS Office, Word, Excel and Power Point) and Networking/LAN/Hardware functions • Knowledge of WMS solution • Good communication skills (oral as well as written) • Fluent with English / Hindi

6.7 Documentation of the CWC-WMS Project

The SI must ensure that complete documentation of CWC-WMS is provided with comprehensive user manuals, and adhere to leading documentation practices/ guidelines. The following documents are the minimum requirements:

- All Architecture documents, Design documents, testing and deployment manuals etc as applicable.
- Systems Manual Detailing the data structure, table, forms and report structures.
- User Manual (both online and paper copies) providing detailed instructions on how to use the software. In addition, it shall describe how to access, submit inputs to, and interpret outputs from the application.

- Detailed documentation on Database Management specific to the project and the applications deployed.

6.8 Implementation of web-based SLA Monitoring Tool

The SI shall provide web-based SLA Monitoring Tool

- a. SI shall implement the SLA Monitoring System to measure performance against each of the indicators listed under SLAs specified in the RFP. The SLA Monitoring System implemented by SI shall be reviewed by CWC before usage.
- b. SI shall ensure that proposed SLA monitoring system addresses all the SLA measurement requirements and enables calculation of eligible compensation to the SI on a quarterly basis, including the penalties as specified in the SLA.

6.9 Operation and Maintenance from the date of Go-Live

Operation and Maintenance of the entire CWC-WMS Solution including, but not limited to, IT Application, IT & Non-IT infrastructure, Servers, Network and Equipment during the interim period between phase I go-live (3 months) and phase II go –live (3 months) and for a period of five years from the date of Phase IIGo-Live.The O and M charges shall be payable at the end of first quarter after Phase-II go-live.”

6.9.1 High-level Scope for Operations and Maintenance

As part of the operations and maintenance services, the SI shall provide support for the software, hardware, and other infrastructure that are in the scope of this RFP. SI shall provide comprehensive support during the interim period between phase I go-live and phase II go-live and for a period of fiveyears from the date of Phase IIGo-Live that includes

- a. Application Software maintenance and support
- b. Annual Technical Support (ATS) for all the licensed software
- c. Operations and maintenance services for the infrastructure provided and commissioned by the SI for the WMS solution at the Data Centre and Disaster Recovery Centre.
- d. Central Helpdesk
- e. Periodic reporting

6.9.2 Application Software Maintenance and support services

As part of the software maintenance and support services SI shall provide:

- a. The IT Application Maintenance and Support Services shall be provided for all components mentioned in this RFP.
- b. The SI shall be required to provide operational & maintenance services for Solution including, but not limited to, production monitoring, troubleshooting & addressing the functionality, availability & performance issues, implementing any system change requests, addressing the incidents/problems raised by the users (via IT Helpdesk) for problems/bugs in the application etc.

- c. The SI shall keep the application software in good working order; meeting the requirements defined by the CWC from time to time based on functional, administrative or legislative priorities, perform any changes and upgrades to applications as requested by the CWC.
- d. Tuning of application, databases, and any other components provided as part of the solution to optimize the performance
- e. SI shall perform (at no extra cost) all changes, bug fixes, different reports of CWC, error resolutions that are incidental to proper and complete working of the application till the end of phase II stabilization.
- f. Updated SRS with the changes incorporated till phase II stabilization will be considered as the baseline
- g. All changes to the WMS solution arising due to statutory, legal and government applicable changes will be implemented free of cost by the SI during contract period inclusive of hardware , software , networking and any supporting infrastructure
- h. Centralized version and configuration control of the application
- i. Any changes to the application code that may be required because of patches to licensed software being used (if any). The SI shall migrate all the current functionality to the new / enhanced version at no additional cost to CWC.
- j. Updating and maintenance of all WMS project documents (including user manuals, trainings etc)
- k. Change request management based on feedback from the users or the initiative of the SI. All planned changes to the application, especially major enhancements and changes in functionality post phase –II stabilization, shall be coordinated within established Change control processes.
- l. The SI will define the Software Change Management and version control process and obtain approval for the same from CWC. For all proposed changes to the application, the SI will prepare detailed documentation including proposed changes, impact on the system in terms of functional outcomes/additional features added to the system, etc.
- m. SI shall carry out the configuration of new CWC warehouses , offices, Services lines, new acts/sections, and any other configurable data entities in the system as required by CWC
- n. The SI shall address all the errors/bugs/gaps in the functionality offered by solution at no additional cost during the operations & maintenance period.
- o. For performing of any functional changes to system that are deviating from the signed-off Functional Requirements/System Requirements, a separate Change Proposal Form shall be prepared by SI and the changes in the software shall be implemented accordingly post phase II stabilization. The time period for implementation of change shall be mutually decided between SI and CWC.
- p. Any changes/upgrades to the software performed during the operations & maintenance phase shall be subjected to the comprehensive & integrated testing by the SI to ensure that the changes implemented in the system meets the desired and specified requirements of the department and doesn't impact any other function of the system. SI shall provide a staging

environment for testing of changes/ updates/ patches before applying them on production environment

6.9.3 Annual Technical Support (ATS) applicable for the licensed software

- a. All supplied software should be supplied with applicable OEM warranties and support for the entire duration of the project. During warranty period vendor has to provide updates and patches.
 - b. Annual Technical Support (ATS) will start from the date of acceptance of the installation. ATS should cover 24 by 7 escalation support from OEM for all software products on OEM letter head to be provided through Phone, Email or Onsite visit depending on the criticality and nature of the Problem. The support has to be ensured by the SI.
 - c. SI must carry out any requisite adjustments / changes in the configuration for implementing different versions of Application Software.
 - d. **Updates/Upgrades/New releases/New versions:** The SI shall provide from time to time the Updates/Upgrades/New releases/New versions of the software and operating systems as required. The SI must provide free upgrades, updates & patches of the software and tools to CWC as and when released by OEM. The SI will implement from time to time the Updates/Upgrades/New releases/New versions of the software and operating systems as required after necessary approvals from CWC about the same
 - e. SI shall provide and apply regular patches to the licensed software including the software, operating system, databases and other applications.
 - f. **Software License Management:** The SI shall provide for software license management and control. SI shall maintain data regarding entitlement for software upgrades, enhancements, refreshes, replacements, and maintenance. SI must perform periodic audits to measure license compliance against the number of valid End User software licenses consistent with the terms and conditions of site license agreements, and other mutually agreed upon licensed software terms and conditions and report to CWC on any exceptions to SI terms and conditions, to the extent such exceptions are discovered.
 - g. SI shall manage complete OEM's technical support for all the licensed software problems and/or questions, technical guidance, defect and non-defect related issues. SI shall provide a single-point-of-contact for software support and provide licensed software support including but not limited to problem tracking, problem source identification, problem impact (severity) determination, bypass and recovery support, problem resolution, and management reporting.
 - h. The SI shall undertake regular preventive maintenance of the licensed software. If the Operating System or additional copies of Operating System are required to be installed / reinstalled / de-installed, the same shall be done as part of ATS.
- The SI shall provide the MIS reports for all the devices installed in the Data Centre and Disaster Recovery Centre for WMS solution in format and media as mutually agreed with the CWC on a monthly basis. Whenever required by CWC, SI must be able to provide additional reports in a pre-specified format.
 - The indicative services as part of this support are as below:

- i. System Administration, Maintenance & Management Services
- ii. Application Monitoring Services
- iii. Storage Administration and Management Services
- iv. Replication, Backup and Restore Services

6.9.4 System Administration, Maintenance & Management Services

The objective of this service is to support and maintain all the Systems and Servers provided as a part of this project by SI, and shall include

- a. 365x24x7 monitoring and management of the servers in the DC.
- b. Regular monitoring of all the applications hosted.
- c. Operating System administration, including but not limited to management of users, processes, preventive maintenance and management of servers including updates, upgrades and patches to ensure that the system is properly updated.
- d. Installation and Re-installation of the server and other hardware in the event of system crash/failures.
- e. Regular analysis of events and logs generated in all the sub-systems including but not limited to servers, operating systems, security devices, etc to identify vulnerabilities. Necessary Action shall be taken by the SI in accordance with the results of the log analysis. Suitable mechanism has to be maintained for security and forensic related logs or as per requirement of IT Act and that of other government regulations issued from time to time.
- f. Troubleshoot problems with web services, applications, database software, Problems shall be logged in at the Help Desk and resolved as per the SLAs defined.
- g. Manage and monitor server configuration, performance and activity of all servers. Performance optimization and reporting - Process and Memory Management, Monitoring CPU performance, Monitoring Memory performance, Monitoring Input / Output performance, Monitoring Ethernet Traffic, etc.
- h. Prepare and keep up to date document containing configurations of all server, IT infrastructure etc.
- i. Hardening servers in line with security policies (ISO 27001:2005 information security control).
- j. Carry out the DC and DRC failure testing and Quarterly BCP real drills.
- k. Configuration of server parameters, operating systems administration and tuning
- l. Operating system administration, including but not limited to management of users, processes, resource contention, preventive maintenance and management of upgrades including migration to higher versions and patches to ensure that the system is properly updated.
- m. Periodic health check of the systems, troubleshooting problems, analyzing and implementing rectification measure

- n. Perform Database Administration activities for Database. The SI agrees that all databases of the CWC will be administered as per standards and requirements. The service covers all the databases run on servers / SAN at DC including but not limited to:-
 - i. Start-up and shutdown of databases.
 - ii. Daily / Weekly / Monthly backup of databases.
 - iii. Database recovery when required.
 - iv. Weekly database recovery checks.
 - v. Required logs maintenance as per policies of the CWC.
 - vi. Documentation upkeep and records maintenance.
 - vii. User account management.
 - viii. Database problem resolution.
 - ix. Performance tuning.

6.9.5 Application Monitoring Services

The services to be provided by the SI for Application Monitoring which includes following but not limited to:

- a. Web services
- b. Application server
- c. Database server
- d. Middleware
- e. Other components

6.9.6 Storage Administration and Management Services

The services to be provided by the SI shall include:

- a. Installation and configuration of the storage system.
- b. Management of storage environment to maintain performance at desired optimum levels.
- c. Management of any changes to database schema, disk space, storage, user roles
- d. Identify key resources in the Storage solution.
- e. Identify interconnects between key resources in the Storage solution.
- f. Identify the health of key resources in the Storage solution.
- g. Identify the available performance of interconnects in the Storage solution.
- h. Identify the zones being enforced in the Storage solution.
- i. Create/delete and enable/disable zones in the Storage solution.
- j. Identify the storage volumes in the Storage solution.
- k. Create/delete/modify storage volumes in the Storage solution.
- l. Identify the connectivity and access rights to Storage Volumes in the Storage solution.
- m. Create/delete and enable/disable connectivity and access rights to Storage Volumes in the Storage solution.
- n. To provide off- site storage of production data and CWC-WMS solution on appropriate media at regular intervals as required by CWC.

6.9.7 Backup and Restore Services

The services to be provided by SI shall include:

- a. Backup of storage as per the defined policies.
- b. Monitoring and enhancing the performance of scheduled backups, schedule regular testing of backups and ensuring adherence to related retention policies as defined by CWC.
- c. Prompt execution of on-demand backups of volumes and files whenever required or in case of upgrades and configuration changes to the system.
- d. Real-time monitoring, log maintenance and reporting of backup status on a regular basis.
- e. Media management tasks, including, but not limited to, tagging, cross-referencing, storing, logging, testing, and vaulting in fire proof cabinets (onsite and offsite).
- f. 365x24x7 support for file and volume restoration requests at the DC

6.9.8 User Profiles and Account Management

- a. Routine functional changes that include user and access management, creating new report formats, and configuration of reports.
- b. SI shall provide user support in case of technical difficulties in use of the software, answering procedural questions, providing recovery and backup information, and any other requirement that may be incidental/ancillary to the complete usage of the application.
- c. The SI shall perform user ID and group management services. The user-id naming & protocol shall be designed and implemented for all the user ids. Such naming convention and protocol shall be signed-off with the CWC.
- d. The SI shall maintain access controls to protect and limit access to the authorized end users of CWC.
- e. The services shall include administrative support for user registration, creating and maintaining user profiles, granting user access and authorization, providing ongoing user password support, announcing and providing networking services for users and providing administrative support related to WMS solution .
- f. System administration tasks such as managing the access control system, creating and managing users etc.

6.9.9 Antivirus Solution Management

- a. SI should ensure overall security of the system including installation and management of Antivirus solution for protection of all the servers (mandatory) at DC, application of updates/patches etc. The antivirus patches have to be updated and applied from time to time, after appropriate testing of the patches in the staging area.
- b. Guarding the systems against virus, malware, spyware and spam infections using the latest Anti-virus suites which include anti-malware, anti-spyware and anti-spam solution for each Server Antivirus version and its upgrades. The Anti-virus suite and updates will have to be provided by the SI at regular intervals as and when the new signatures are released by the OEM

6.9.10 Periodic reporting

The SI shall submit the following period reports (but not limited to) to CWC:

- i. Updated system design documents, specifications
- ii. Latest source code, application deployment files, configuration files for entire solution Software change logs etc.
- iii. Corrective Action report in response to the any audit findings/ other concerns as identified by CWC
- iv. Monthly report on the central helpdesk centre operations
- v. SLA Monitoring Reports

6.10 Centralized helpdesk

- The system integrator shall establish and provide central helpdesk facility from CWC Corporate office in Delhi
- The System Integrator is expected to setup and operate the IT Helpdesk during the interim period between phase I go-live and phase II go-live and for a period of fiveyears from the date of Phase IGo-Live
- The following is the hours of operation of the Helpdesk :

Operating hours	Days of the week
10 am -6 pm	<ul style="list-style-type: none"> • Mon-Sat (excluding national public holidays and all second Saturday) • Any other date and time as requested by CWC

- The Helpdesk service will serve as a single point of contact for WMS solution rated incidents and service requests. The Helpdesk shall provide Troubleshooting Services include maintenance for overall system stabilization, defect resolution, solution maintenance, system administration, availability & performance issues, security administration, database administration, , Data archival administration, User administration and end-user problem resolution. The operational support will have to be provided, through a suitable Helpdesk system, to ensure that the solution is functioning as intended and that all problems associated with operation are resolved satisfactorily.
- The Helpdesk service is required in the two languages – English and Hindi.
- SI is required to provide necessary channels for reporting issues to the help desk. The incident reporting channels could be the following:
 - Specific E-Mail account
 - Seating arrangement and electricity will be provided by CWC free of cost to SI. SI needs to provision for any other hardware / software required for the same.
 - Portal – A web based functionality for service desk tool for registering the calls
- CWC requires the SI to provide Help Desk services to track and route requests for service and to assist end users in answering questions and resolving problems related WMS.

- Creation of knowledge base on frequently asked questions to assist user in resolving basic issues themselves.
- Services in this area include, but are not limited to, the following:
 - i. Logging all the calls, classifying the calls and render first level support
 - ii. Assigning the call for appropriate action, within the stipulated time.
 - iii. Tracking the call till closure and ensure SLA adherence by service providers and vendors.
 - iv. Generate reports on a daily, weekly and monthly basis. Generate exception reports.
 - v. Provide the need-based ad-hoc reports.
 - vi. Interact with CWC and CWC vendors
 - vii. Ensure adherence to escalation processes.
- SI need to provide the following number of resources as Helpdesk agents

Number of resources	Duration
3 resources	<ul style="list-style-type: none"> • One year from the date of go-live of phase-I.
2 resources	<ul style="list-style-type: none"> • Post first year from date of go-live of phase I, till remaining duration of the project

- The SI will also submit an escalation matrix to CWC on the procedure for resolution of different types of issues/error/bugs and implement the same
- The helpdesk agents deployed by the SI should have the following minimum criteria

Name	Job description	Skill set
Helpdesk Agents	<ul style="list-style-type: none"> • Providing assistance to callers and assist in trouble shooting 	<ul style="list-style-type: none"> • Graduate in any discipline • Good knowledge of computer (MS Office, Word, Excel and Power Point) • Good communication skills (oral as well as written) • Good understanding in the components of CWC-WMS deployed • Fluent with English and Hindi

6.11 Audit & Testing Requirements

As part of the overall solution, the SI will have to provide audit & testing services at various stages of implementation. Some of the key stages are as follows:

- WMS solution implementation and rollout
- Pre -Go-Live
- Post Go-Live

6.11.1 WMS solution implementation and rollout

As part of WMS solution implementation and rollout, SI shall cover all activities like configuration of business processes, developments such as conversions, interfaces, reports etc which prove that system settings are correct as per business requirements of CWC. In doing so, SI shall include test plans, test cases, and testing reports.

SI shall create the test strategy document that defines the requirements and goals of the COTS configuration, determine the tools and methods used to check that the system responds correctly, determine how and when the test will be performed and recommend how the approval process should occur.

The test strategy document shall guide the project team through the implementation to ensure that planning and conducting testing activities in the various phases of the WMS implementation are proper. The various testing phases are as follows:

i. Base Line Testing

The purpose of Baseline Scope testing activities is to plan and conduct testing to validate the Baseline configuration. Baseline Scope testing shall ensure that Baseline configuration is valid, and shall support the business processes defined in the Business Design Report.

Baseline Scope testing shall be carried out in three steps:

a. Define Baseline test cases:

- SI shall develop the baseline test plan with scenarios and test data to be used for testing based on the test templates.
- For simple transactions, testing (unit testing) shall be done straightforward during configuration and the results shall be recorded.
- For transactions that are complex involving multiple screens, functions and variations, the SI shall document the test cases and the test cases shall be tested with a Business Process Procedure. The SI shall also maintain the test cases with test conditions and any variations of the standard transactions/case procedures.
- SI shall use the Test Scenario template entering every single step (transaction) with input and output data to document process flows.

b. Create Baseline test plan

- SI shall organize and follow up the unit and scenario testing at the module level during Baseline scope testing.
- SI shall assign timeframes and resources for testing.

c. Test Baseline

- SI shall use the Baseline test plan and the test cases to test Baseline configuration.
- SI shall update the status including date of completion in the Baseline worksheet.

ii. Development Testing

The SI shall after development and customization/configuration of the WMS solution, conduct tests to demonstrate that the system meets all the requirement specifications (functional and Non-functional) as brought out in this RFP. This shall be in accordance with the procedures detailed in approved Business Design Report.

On the basis of these tests, a report would be submitted by the System Integrator for review and approval by CWC. The test results and response times should be demonstrated by the SI during all the testing phases (System, integration & Stress and Load testing) at each CWC location in an environment/infrastructure as mutually agreed upon.

The development testing shall cover testing of:-

- Unit testing of customer-specific development
- Conversions
- Enhancements (User-exits and other code enhancements)
- Reports

Development should not only be tested by the developer but also by the process owner to make sure that the test results (output data) are correct, and reflect the business processes defined in the Business Design Report.

After unit testing is completed, all customer-specific programs and forms shall be included in the Final Integration Test

6.11.2 Pre Go-Live

i. Integration and System Testing

The purpose of the Integration Test is to execute the integrated components, including simulation of live operations, and analyze the results that are important for the functional verification of the production system.

Integration testing shall be accomplished through the execution of predefined business flows, or scenarios, that emulate how the system will run the processes of CWC. These business flows, using migrated data from the existing systems, shall be performed in a multifaceted computing environment comprising of WMS products, system interfaces and various hardware and software components. The integration tests shall build the necessary level of confidence that the solution is complete and will perform the business processes of CWC.

Integration testing shall focus on cross-functional integration points, as well as end-to-end business processes. The Final Integration Test Plan shall start with the testing of the cross-functional integration points (touch points) and end with the end-to-end testing of critical business processes identified within the Business Design Report.

Integration testing shall be done in two iterations.

- The first iteration (Integration Test) shall concentrate on testing all important business processes inside the WMS system, starting with touch point scenarios and ending with end-to-end-scenarios. It will be done by SI's functional consultants. Unit testing shall be carried out for customer specific developments like user-exits and transactions. Authorizations and user roles would also be tested in the Integration Test.
- System Testing, as a second iteration, shall focus on the most important cross-enterprise scenarios with touch points to external components, including testing of conversions, interfaces, reports, and the necessary authorizations. It will be conducted by CWC users with the assistance of core team.
- Integration and System tests need to be an evolutionary process that is driven from the previous testing efforts. The test cases and scenarios that were used for Baseline need to be reviewed by CWC and enhanced for the integrated and System tests. These selected cases will be combined to represent a business process flow such as a revenue cycle or a material acquisition cycle. Problems encountered during these efforts also need to be tested under an integrated environment.

ii. Load and Stress Testing

Once the System Integration testing of the configured and customized solution has been conducted successfully, Load, scalability and stress testing would be conducted prior to commissioning & Go-Live. SI should use suitable simulation tools in accordance with the agreed test procedures keeping in view CWC's projected future load of transactional users as proposed by SI and agreed by CWC. After successful testing and its clearance with CWC, the solution would then be considered as ready for commissioning.

iii. ISO-27001

The SI will carry out an Information security audit on application in line with ISO-27001 guidelines by a third party CERTIN empanelled auditor and submit the report to CWC. SI will also close all observations of such an audit. This audit will be required to be carried out at pre Phase I and Phase II go-live.

Brief scope of Information Security Audit :

1. The bidder should carry out an Information security audit on application in line with ISO-27001 guidelines by a third party CERT-IN empanelled auditor and submit the report to CWC. Bidder should also close all vulnerabilities, observations & recommendations of such an audit and the cost of closure of all such audit vulnerabilities, observations & recommendations to be borne by bidder.
2. Functional application audit of WMS in line with ISO-27001:2005 guidelines to cover at least follows :-
 - User Authentication:
 - Review of User Account Management
 - Privilege Management and Access Restrictions User ID Scrutiny and Evaluation
 - User Authorization:
 - Segregation of Duties
 - Evaluating Access Controls
 - Critical Access Review
 - Auditing & Logging:
 - Recording of security events for future investigations and access control
 - Change Management Review
 - Modifications done to the programs and the configurations
 - Segregation between the development and production
 - Testing process
 - Quality assurance
 - Configuration Management
 - Verification and evaluation of configurations relating to business processes
3. Information security audit of should also cover at least following :
 - Network mapping
 - Vulnerability assessment
 - Internal and external network penetration testing
 - Password cracking
 - Log review, incident response and forensic auditing
 - Malware/Virus detection

4. Scope of work also covers evaluating the confidentiality, safety & security of the Data & Servers, Assess& strengthen the security posture of WMS systems for protection against External threats, by way of remote infrastructure security assessment, Internal threats, by way of on-site infrastructure security assessment and Integrated system threats, by way of application security assessment. The Audit would include:
5. **Report** : The formal IT security audit report is a key audit output and must contain the following:
 - Dates and Location(s) of audit
 - Audit plan
 - Additional mandatory or voluntary standards or regulations applicable to the auditee
 - Summary of audit findings including identification tests, tools used and results of tests performed
 - Analysis of vulnerabilities and issues of concern
 - Recommendations for action
 - Weekly progress reports of the assignment should be submitted so as to keep CWC fully informed at every stage of the assignment during the complete & rigorous Information Security Audit.
 - The final report is to be submitted immediately upon completion of the assignment.
 - Presentations on the report, its findings, conclusions and recommendations need to be made to CWC’s Management and to other audience, if required.
6. **Confidentiality** : All documents, information and reports relating to the assignment would be handled and kept strictly confidential and not shared/published/supplied or disseminated in any manner whatsoever to any third party..

iv. User acceptance testing

SI shall prepare test cases for User Acceptance Testing (UAT) in consultation with CWC project team. SI shall facilitate CWC Key User team to conduct this test after successful completion of integration and system testing. CWC will prepare a test defect log. SI would make the necessary changes to ensure that the application successfully goes through UAT.

6.12 Dashboard and reporting

The cardinal objective of the proposed system is to provide summarized, timely and accurate information to the top management to aid them in their day to day decision making process as well as for their long term strategic planning. The different modules described above will have the necessary reports / outputs to meet the requirements of the transaction processes. In order to get a holistic view of the entire operation and management of CWC, the top management would be required to access

data from different modules and view them in a meaningful way. Hence, on top of all the modules proposed to be developed, a module for the Information System - MIS – is proposed to be built which would present to the top management a summary view of the entire gamut of activities of CWC to enable the effective planning, monitoring, controlling and review of activities of CWC at different levels of the management hierarchy.

The proposed system shall provide extensive reporting options to address the needs of all the levels of management (operations, middle level as well as top management). The system shall provide drill down options and alert facilities for the various levels of management to effectively control, monitor and review CWC operations. The features of the MIS and some sample information requirements at various levels are detailed in a separate document at Annexure I.

Note: any report which/whose data is residing in the WMS system / or can be arrived at by using some logic on the available data will not fall/ qualify as change request

6.13 Change request

For the purpose of change request, man day rates are being asked from prospective bidders in vol II of this RFP. Detailed change request process is detailed out in vol III of this RFP.

Any changes till Phase II stabilisation, (e.g. new functionalities, improvement in execution time, performance tuning etc.) and which were not there in the SRS (signed off before phase 1 Go-Live), design description, etc will not qualify as change request. The bidder will implement such changes in the solution required at no additional cost to CWC.

A baseline SRS will be created at the end of phase II stabilization phase inclusive of the changes incorporated from phase I go live.

Any configuration, performance tuning, change in statutory requirement, mitigation of security observation during annual/ periodical audits, changes required to accommodate patches, upgrades etc which are required for the operation of the project shall not qualify as change request.

The functional requirements given in Vol I Annexure I are indicative only and not exhaustive in any manner and/or kind and/or form. The bidder by responding is deemed to have understood and agreed that the requirements are subject to change at sole discretion of CWC and will be finalized during Software Requirement Specification, As Is , To be , requirement analysis , design phase etc. i.e. till Phase II Go-live. Failure to comply with which may invite forfeiture of Performance Bank Guarantee and any other terms and conditions of RFP.

All the development / customization/ configuration must meet the requirements for security, performance, ease of use for operations, administration and management

Any report which/whose data is residing in the WMS system / or can be arrived at by using some logic on the available data will not fall/ qualify as change request

7 Implementation approach

CWC intends to implement the WMS system in a phased manner. The business functions of CWC are standard across various types of warehouses.

A pictorial depiction of the implementation approach is as follows:

Sr. no.	Phases	Locations/warehouse	Timeline	Stabilization	Remarks
1	Phase I : Pilot Rollout	20	3 months	1 months	Pilot warehouses to be selected on mutual understanding of Si and CWC
2	Phase 2 : Rollout	Balance 380 app.	3 months	1 months	These no. of warehouse may increase or decrease during rollout
3	Operations & Maintenance	All warehouse of phase I & II	Five years	6 months:Exit management period.	The contract may be further extended for another two year subject satisfactory services and on same rates, terms and conditions

SI is required to carry out tasks related to a specific stage/phase before the beginning of the phase in case the same requires so and to meet the requirements of the RFP and the proposed timelines.

7.1 High level project milestones

S.No.	Milestone	Time for Completion(months)
Phase I (Pilot)		
1.	Study, preparation of SRS and Design Documents	T+1.5
2.	Solution Development/Configuration &Customization	T+2.5
3.	Data Digitization , Data Quality Review & Testing	T+3
4.	Testing solution for phase I & IT infra on Cloud	T+3
5.	UAT for phase I	T+3
6.	Audit for Phase I solution	T+3
7.	Phase I Go-Live	T+3
8.	Phase I stabilization	T+4
Phase II (Rollout)		
9.	Phase II– Rollout	T+6
10.	Baseline SRS and stabilization	T+6
11.	Operations and Maintenance	5 years

Note: “T”, as referred above is the date of either signing of agreement between selected SI and CWC or the meeting conducted by CWC to kick-off the project, whichever is earliest.

8 Governance structure & roles and responsibilities

8.1 Governance Structure Units and Responsibilities

Committee / Unit / Team	Key Roles	Key Responsibilities
Project Steering Group (PSG)	<ul style="list-style-type: none"> Owner(s) of the Project PSG would be responsible for taking all decisions related to overall vision and policy matters PSG shall hold meetings at least once every month to review the progress made in relation to the CWC WMS Project during the implementation 	<ul style="list-style-type: none"> Project approval including process for program implementation Approve major changes to Project components Finalize funding strategy and fund management principles Fund allocation Monitor project progress Resolve issues that might occur during implementation, which are relevant to PSG (if any) Facilitate policy changes for effective

Committee / Unit / Team	Key Roles	Key Responsibilities
	<p>period and once every three months during the operation period.</p>	<p>implementation, if required.</p>
<p>Project Management Group (PMG)</p>	<ul style="list-style-type: none"> • Time bound implementation of the Program and adherence to its objectives • Responsible for Day to Day monitoring of the project 	<ul style="list-style-type: none"> • Co-ordinate with SI Committee and functional heads • Oversee and monitor the work performed by System Integrator • Coordinate with all Project locations for implementation • Project coordination • Financial monitoring • Progress monitoring of all the project sites. • Provide inputs to PSG members on Project status • Manage and monitor SLAs • Carry out overall UAT. • UAT sign off • Quality assurance and oversight • Manage Risks • Resolve Technical Issues • Any other responsibility as assigned by MD(CWC)
<p>Functional head</p>	<ul style="list-style-type: none"> • Functional heads • Process Owner • Business Process re-engineering in respective functional areas. • Finalising and signing off FRS and SRS for Respective Services Module • They may further constitute a sub-group to assist him/her in the activities 	<ul style="list-style-type: none"> • Define processes involved in the respective functional areas. • Finalise and signoff FRS • Finalise and signoff SRS • Work closely with PMG Group towards achievement of the above. • Interact with System Integrator and Provide Implementation assistance for the respective Services module • Monitor User acceptance testing for respective Services Module and signoff • Approve changes / modifications to the respective Service module • Any other responsibility as assigned by MD(CWC)
<p>Project Implementing Team</p>	<ul style="list-style-type: none"> • Project location head to lead the Project Implementation • Administrators may further constitute a 	<ul style="list-style-type: none"> • Formation of Implementation Team at RO location. • Facilitate Implementation of WMS at their warehouses under their control. • Procurement of Local Infrastructure to

Committee / Unit / Team	Key Roles	Key Responsibilities
	group to assist him/her in the activities	support WMS usage. <ul style="list-style-type: none"> • Ensure training of end users at RO/warehouse onWMS via trainers (of CWC). • Liaison and coordination with PMG / Functional Heads. • Any other responsibility as assigned by MD(CWC)

- Sign off on go live, rollout etc of WMS shall be given by respective warehouse manager.

9 Roles and responsibilities

9.1 Role and Responsibilities of System Integrator

- i. Preparation of Detailed Project Plan in line with the overall plan provided in the RFP. The same should be prepared in consultation with Central Warehousing Corporation.
- ii. Provide required IT infrastructure on cloud platform on subscription basis, install, commission, operate and maintain:
 - a) Requisite hardware & system software on cloud (DC and DR as a service) as per the requirements mentioned in this RFP
 - b) The WMS should have appropriate servers in high availability mode with load balancer beside security features such as firewall, IPS, SSL, Anti malware, encryption etc. to meet the service levels define in this RFP. The configuration of IT infrastructure should be commensurate with warehouses and users.
 - c) Meet the defined SLAs for the performance of the system.
- iii. Implementation of WMS solution as per the requirements mentioned in this RFP document
- iv. Keep all system software i.e. OS, antivirus, etc., for Servers, etc. at Data Centre, up to date by installing regular upgrades / patches.
- v. On-going maintenance support, upgrades and enhancements of the solution
- vi. Setting up and operations of centralized help desk as mentioned in this RFP document and provide necessary support for the resolution of bugs, patches & upgrades of the solution.
- vii. Submit documents & deliverables as defined in the RFP
- viii. Ensure availability of other infrastructure components for conducting training programmes like desktops, projector, spikebuster, training material handouts etc.
- ix. Ensure training material for trainer to train the other users of CWC.
- x. Delivering training for CWC employees as mentioned in this RFP document
- xi. Rollout and handholding at each warehouse for 15 days.
- xii. Periodic testing of readiness of DRC
- xiii. Recovery in case of failure of DC/DRC
- xiv. Data digitization as mentioned in this RFP document.
- xv. During the maintenance phase the responsibility of overall system and version control will continue to be vested with SI only.
- xvi. Maintaining the SLA requirements as mentioned in this RFP document.
- xvii. Analysing& managing system performance, network performance, call logs, etc., as well as providing the means of monitoring the SLA metrics.
- xviii. Regular backup of the solution data.
- xix. Generation of MIS reports as per the requirements of Central Warehousing Corporation.
- xx. Generation of the report for the monitoring of SLAs.
- xxi. Providing Help features on the Application Modules that can be used by stakeholders such as Frequently Asked Questions (FAQ), email system etc.Various tests and audits as mentioned in this RFP
- xxii. Others as mentioned in this RFP document

9.2 Role and Responsibilities of CWC

1. Make necessary support and personnel available to facilitate smooth implementation.
2. Facilitate interactions of SI with various stakeholders for understanding & capturing interface/integration requirements.
3. Provide necessary paper documents and data required for system development and legacy data migration
4. Provide support & personnel required for testing the system during implementation, acceptance, rollout and the O&M period.
5. Provide necessary civil infrastructure ie conference room and refreshments only to conduct user training programs as mentioned in this RFP
6. Facilitating training programs to create necessary work culture transformation in order to derive optimum benefits from the new system
7. Ensure timely signoffs related to any requirement of authorization towards delivery of normal scheduled services as required from SI as part of this project. All the deliverables submitted by SI will be approved by CWC in 10 days unless concerns are highlighted. Under circumstances where no response is received from CWC, the deliverable will be deemed accepted post the 10 days window is elapsed
8. Ensure availability of end-user Infrastructure like desktop computer, printer, scanner etc
9. Provide power requirements, general facility & infrastructure support, environmental support systems, fire safety appliances & control measures in all locations other than those explicitly stated as the SI's responsibility.
10. Establish necessary processes and procedures for entry of all operating personnel and for working on 24x7 timeframe in all facilities that would demand such presence
11. Undertake site visits during the execution of the project in order to ensure that the implementation is going on as per the requirements in the RFP and that the System Integrator is discharging his responsibilities effectively
12. Monitoring of overall timelines, SLAs and calculation of penalties accordingly.
13. Ensuring the staff members and other stakeholders attend the training programs as per the schedule defined by the bidder and agreed upon by Central Warehousing Corporation.
14. After successful deployment of WMS system DC and DR as a service commissioning certificate will be given by GM(system)
15. After successful deployment of solution component(s) at Warehouses the commissioning /go live/rollout certificate will be given by respective warehouse head.

10 System acceptance

CWC or its nominated agency will carry out User Acceptance Test, System Acceptance Test to ensure that the implementation meets all the requirements including but not limited to processes, standards, specifications, and performance as detailed in the RFP.

User Acceptance Test

- i. This will be carried out prior to release to the production as mentioned below:
 - a) System Integrator shall carry out comprehensive testing of the entire solution prior to the release of WMS. System Integrator is responsible for making all necessary arrangements for testing (unit, functional, integration, and user acceptance) including the preparation of test data, scripts where necessary and deployment of the same. The test data shall be comprehensive and address all scenarios identified in the test cases. The System Integrator shall create test reports from testing activities and submit to CWC on request.
 - b) After successful unit testing of all components, the System Integrator should conduct full-fledged functional testing and integration testing in accordance with the approved Test Plans. Integration testing shall cover both cross-functional integration points, as well as end-to-end processes. The test plans should be provided to CWC in advance for approval. In addition to the above, the testing should cover performance testing and security testing.
 - c) System Integrator shall conduct the load tests with an objective to determine the response times of various transactions and business processes and ensure that they are within documented expectations (or Service Level Agreements - SLAs).
 - d) SI shall prepare test cases for User Acceptance Testing (UAT) in consultation with CWC project team. SI shall facilitate CWC Key User team to conduct this test after successful completion of integration and system testing. CWC will prepare a test defect log. SI would make the necessary changes to ensure that the application successfully goes through UAT.

Further any changes to the application suite during the operations and maintenance phase will be released to production only after successful testing including automated testing where necessary, of the solution. The test plans shall be provided in advance to CWC for approval.

System Acceptance Test

- i. This will be carried out after the release to the production for both WMS solution and infrastructure.
- ii. System Integrator shall submit a self-certificate to CWC detailing out how all the requirements targeted for that release (Phase I, II) are met prior to the release to the production.
- iii. CWC will review the details, conduct the necessary tests, and may request any clarifications. System Integrator shall clarify with additional details to the satisfaction of CWC and fix any open items .The same has to be approved by CWC.
- iv. The solution released in production environment should be running for a continuous period of 2 weeks with no Level – 1 or Level – 2 errors/defects/bugs reported on the solution.

In case any such Level – 1 or Level – 2 incidents are reported in production, the same will have to be fixed and the fixes should be released into production. System Acceptance Test will be treated as successful when the solution is running for a continuous period of 2 weeks with no Level – 1 or Level – 2 errors/defects/bugs reported on the solution after such release(s).

The above will be carried out at the end of each phase.

Note:

- i. *Level 1 error/ defect/ bug would be defined as the one which does not adhere to the FRS/ SRS and has the greatest business impact wherein the user is not able to perform his/her regular work, or the output from the system is not as per the requirement.*
- ii. *Level 2 error/ defect/ bug would be defined as the ones which has medium business impact wherein the user is partially able to perform his/her regular work.*

11 Annexure I

Published as a separate document

12 Annexure II: Project location information sheet

Published as a separate document