

PUNJAB STATE E-GOVERNANCE SOCIETY

GOVERNMENT OF PUNJAB, CHANDIGARH



Request for Proposal - Volume II
For
Selection of System Integrator For
State Wide Roll-Out of E-District MMP in Punjab
Under National E-Governance Plan (NeGP)

Ref No: eDistrictPunjab /PSeGS/June-2013/01



Punjab State e-Governance Society
In O/o Department of Governance Reforms
SCO 193-195, Sector 34-A, Chandigarh

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GLOSSARY OF TERMS

The definitions of various terms that have been used in this RFP are as follows:

- **“Request for Proposal (RFP)”** means all three Volumes and its annexures and any other documents provided along with this RFP or issued during the course of the selection of bidder, seeking a set of solution(s), services(s), materials and/or any combination of them.
- **“Contract / Agreement / Contract Agreement / Master Service Agreement”** means the Agreement to be signed between the successful bidder and PSeGS, including all attachments, appendices, all documents incorporated by reference thereto together with any subsequent modifications, the RFP, the bid offer, the acceptance and all related correspondences, clarifications, presentations.
- **“Bidder”** means any firm offering the solution(s), service(s) and /or materials as required in the RFP. The word Bidder when used in the pre-award period shall be synonymous with parties bidding against this RFP, and when used after award of the Contract shall mean the successful party with whom the agreement is signed for rendering of services for implementation of this project.
- **“Proposal / Bid”** means the Pre-Qualification, Technical and Commercial bids submitted for this project against this RFP.

1. Request for Proposal Datasheet

S. No	Information	Details
1.	RFP No. and Date	<i>eDistrictPunjab/PSeGS/June-2013/01</i>
2.	Last date for submission of written queries for clarifications	24/06/2013 Email : edistrictpunjab@punjab.gov.in
3.	Date of pre-bid conference	27/06/2013 at 3:00 P.M
4.	Release of response to clarifications	05/07/2013
5.	Bid validity period	180 days from the last date (deadline) for submission of proposals.
6.	Last date (deadline) for submission of bids	19/07/2013 up to 2:00 P.M
7.	Opening of Pre-Qualification Bid	19/07/2013 at 3:00 P.M
8.	Opening of Technical Bids	"To be intimated later"
9.	Technical Presentation by the Bidders	"To be intimated later"
10.	Place, Time and Date of opening of Commercial Bid received in response to the RFP notice	"To be intimated later"
11.	Contact Detail for all type of correspondence including pre-bid queries, any general query and address at which the response to RFP is to be submitted:	Sh. Kalwarn Singh Assistant Manager (EG) Punjab State e-Governance Society, Department of Governance Reforms, SCO 193-195, Sector 34-A, Chandigarh - 160022 Tel: (0172) – 2661808 (Ext: 137) Fax: (0172) - 2666265 Email: edistrictpunjab@punjab.gov.in

2. Introduction

NeGP was approved by the Government of India in May 2006, with the following vision:

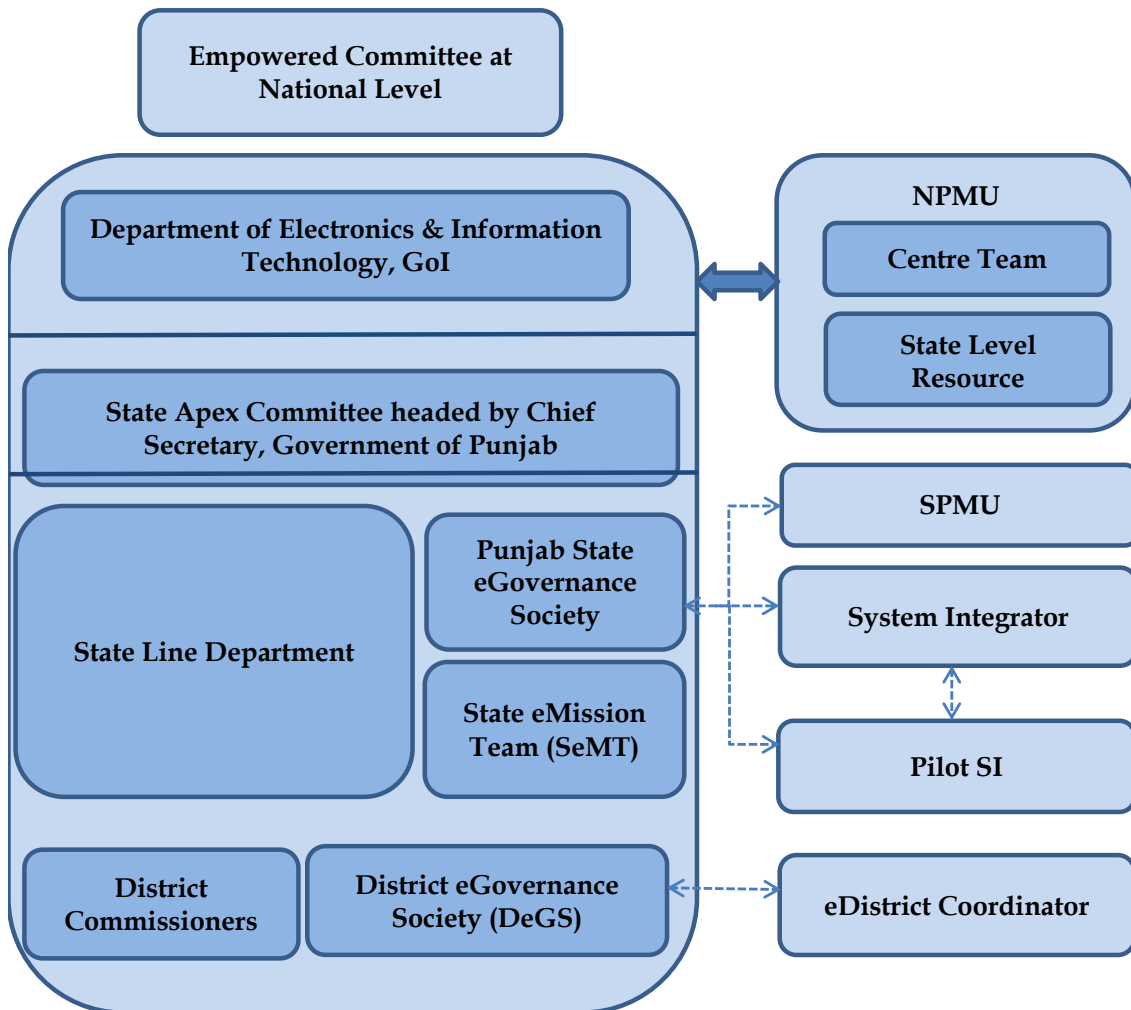
“Make all Government Services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realise the basic needs of the common man”

To realize this vision, 31 Central, State and Integrated Mission Mode projects (MMPs) along with 8 support components were identified and approved under NeGP. States have been given flexibility to identify up to 5 additional state-specific projects, which are particularly relevant for the economic development of the State. NeGP also envisages creation of the core IT infrastructure in the form of SWANs, SDCs and one lakh front ends namely GSKs in rural areas across the country to deliver public services electronically in the local language..

e-District is one of the 31 MMPs under NeGP, with the Department of Electronics & Information Technology (DeitY), Government of India (GoI) as the nodal department, to be implemented by State Government or their designated agencies. This MMP aims at electronic delivery of identified high volume citizen centric services, at district and sub-district level, those are not part of any other MMP. To achieve these objectives service levels and outcomes for each of these services will be clearly laid down by the State concerned, with a view to improving the efficiency and effectiveness of the service delivery. The MMP envisages leveraging and utilizing the four pillars of e-infrastructure namely, State Data Centres (SDCs), State Wide Area Network (SWANs), State Service Delivery Gateways (SSDGs) and Common Service Centres (CSCs) (Named as Gram Suwidha Kendra (GSK) in Punjab), optimally to deliver public services electronically to citizens at their door steps. Initially only those high volume citizen-centric services will be taken up for implementation which have high priority for the State. New services will be added to the portfolio subsequently, once the demand for the initial set of e-enabled services increases.

3. Implementation Framework

- I. e-District project shall be implemented in a way where the districts will play a major role. e-District shall be implemented in alignment with the NeGP principle of “centralized planning and decentralized implementation”. State Nodal Agency (Punjab State e-Governance Society – PSeGS) shall play a key role in planning and implementation of the program in collaboration with the district.
- II. The role of the DeitY, GoI focuses primarily in planning of national level roll out, issuing guidelines, funding support to the states, monitor and support the state in implementation of the project. States shall drive the implementation at the state/district level. The diagram illustrating the key stakeholders and their role in implementation and for managing the eDistrict MMP is shown below:



- III. e-District MMP aims at electronic delivery of all public services at district / sub district level, progressively. Initially 10 categories (5 mandatory + 5 State specific) of identified

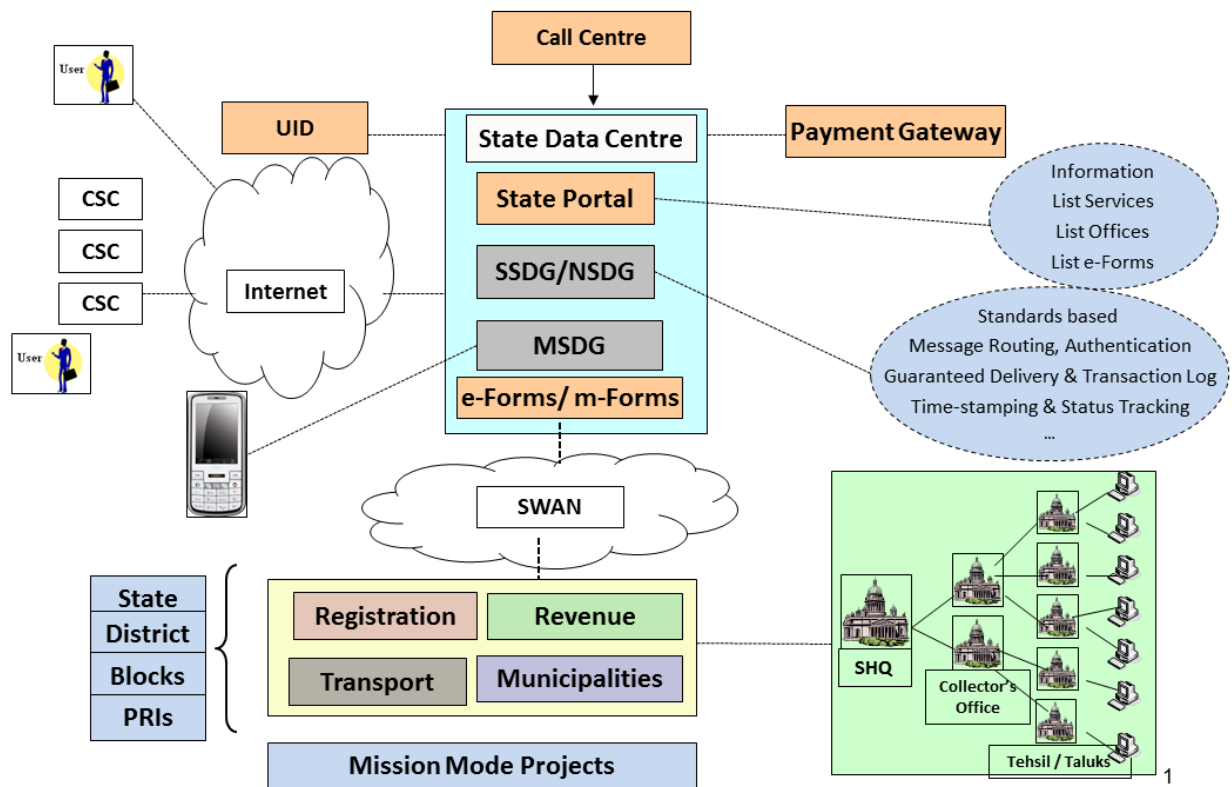
high volume citizen centric public services at district and sub-district level will be taken up for implementation.

Services are classified into 3 basic categories:

- Type 1 services are typically those services for which an accurate digital database is available. For e.g. in the State of Punjab, Land Records have been digitized and several land-related services are now available across the counter.
- Type 2 services are those services which can migrate to Type 1 services with due data digitization and onetime physical verification. For e.g. issue of Caste Certificate. Till such time as the centralized, digitally signed databases are created, Type 2 services are delivered within a pre-defined period, say 2 weeks.
- Type 3 services require physical presence / verification and cannot be delivered across counter, like issues of arm license.

Prioritization of Services shall be done on the basis of categories under which the Services shall fall.

- IV. An Integrated Service Delivery Framework has been designed by DeitY in July 2012, and communicated to all the States. It can be accessed at (URL: <http://deity.gov.in/content/e-district-guidelines>). This framework envisages a centralized architecture for each major e-Governance application at the State level. The application software will be hosted in the State Data Centre. Integration across States shall be enabled, through mandatory adherence to technical specifications and e-Governance standards, besides use of the SSDG. Compliance to latest Unicode standard (current version is 6.0) for local language content/data encoding is also mandatory. The Integrated Framework shall be treated as part of this RFP and shall be followed with appropriate modifications, required by the State.
- V. Two key aspects of the Scheme are Business Process Re-engineering (BPR) and creation of databases based on e-Governance standards for the purposes of ensuring interoperability. BPR is intended to enable process simplification and significant value addition to citizens.
- VI. The solution architecture of the e-District project envisages a centralised application and database and will leverage the core e-infrastructure of State Wide Area Network, State Data Centre and State Service Delivery Gateway.



- VII. Further e-District service will be integrated with a mobile service delivery gateway and Aadhaar numbers of the Unique Identification Authority of India. Localisation of the application will be carried out as per the requirement of the state in terms of local language and other needs. According to this, each States selects System Integrator (SI) who shall be responsible to implement the project in the state as per the DeitY, Gol guidelines. Integration of existing applications being used in the state shall not be possible unless the legacy data in the local language is compliant to Unicode version 6.0 or above. In some cases, this legacy data therefore will need to be converted to Unicode 6.0 (or latest version).
- VIII. The e-District MMP envisages centralised architecture at the state level with common application software for each of the identified services for all the districts of the state. The application software will be hosted in the SDC.
- IX. Integration across states shall be enabled, through mandatory adherence to technical specifications, eGovernance and localization standards. The detailed guidelines in this regard have been issued by Department of Electronics and Information Technology (DeitY) Government of India as stated in Para IV above.

4. Scope of the Project

4.1. Introduction

- I. The e-District MMP is to be implemented across 20 districts out of total 22 in the State of Punjab (2 districts namely Kapurthala & Shahid Bhagat Singh Nagar are pilot districts). The implementation of the scheme will be completed in ten (10) months commencing from the date of award to the System Integrator (SI) and will be followed by 5 years of Operation and Maintenance (O&M) phase (4th & 5th year at the discretion of PSeGS).
- II. The implementation in the states is proposed to be carried out in phased manner. During the first phase a set of 10 services, out of total 47 services, shall be selected and implemented across all the districts. Thereafter next set of 25 services shall be implemented across all the districts during the second phase and the remaining services shall be made live during the third phase of the project. The updated/ modifies version of the eDistrict application shall be rolled out in the fourth phase. (For details please refer to section 5 of this volume).
- III. SI needs to ensure completion of all precedence activities required for the implementation of any set of services. The activities shall include site preparation, hardware supply & installation, training, supply of digital signature to officials etc.
- IV. List of districts* is provided below:

Sr. No.	Name of the District	Sr. No.	Name of the District
1.	Amritsar	2.	Bathinda
3.	Barnala	4.	Faridkot
5.	Fatehgarh Sahib	6.	Ferozepur
7.	Gurdaspur	8.	Hoshiarpur
9.	Jalandhar	10.	Mansa
11.	Ludhiana	12.	Muktsar
13.	Moga	14.	Patiala
15.	Roopnagar	16.	Sangrur
17.	S.A.S Nagar	18.	Tarn Taran
19.	Fazilka	20.	Pathankot
21.	Kapurthala (Pilot District)	22.	Shahid Bhagat Singh Nagar (Pilot District)

* The list is as per the current number of districts notified in the State. However in case there is an increase in the number of districts during the term of contract of the SI, the SI shall be

required to provide the services including hardware, manpower support etc. to the newly created districts. The payment in that case shall be made, item wise, as per the unit rates provided in the Bid.

- V. List of GSKs (CSCs are named as Gram Suwidha Kendra in Punjab) along with roll out status is provided below:

S. No.	District	Planned GSKs	GSKs Commissioned
1	Gurdaspur	270	267
2	Hoshiarpur	236	268
3	Nawanshahr	79	104
4	Jalandhar	158	157
5	Kapurthala	115	100
6	Fatehgarh Sahib	74	74
7	Ludhiana	153	153
8	Mohali	0	7
9	Patiala	181	181
10	Roopnagar	148	137
11	Ferozpur	167	24
12	Bhatinda	47	30
13	Mansa	40	16
14	Faridkot	28	23
15	Moga	55	33
16	Muktsar	39	27
17	Sangrur	117	94
18	Amritsar	205	123
19	Taran Taran	0	98
20	Total	2112	1916

The following will be the activities to be carried out by the selected Bidder:

1. Project Planning and Management
2. Application Study and Design
3. Business Process Reengineering for the selected applications/ services
4. Modification/ Customization of eDistrict Application
5. Network Connectivity
6. Data Digitization in English and Punjabi with Unicode compliance
7. Data Migration
8. Site Preparation
9. Hardware Procurement & Commissioning
10. STQC Certification and C-DAC/TDIL Certification (for localization).
11. UAT & Go live

12. Capacity Building
13. Operation & Maintenance (O&M)

4.1.1. State Specific Requirements

The eDistrict application will be based on central and networked data processing architecture. The data processing will be carried out at multiple locations, across the state, with a set of servers temporarily hosted at MGSIPA, Sector 26, Chandigarh to support the processing needs. The system shall be proposed & designed as to avoid any single point failure to the extent possible. This central location would be connected to the various departmental units through different network PoP's of SWAN.

The application would be web based application and accessible over a standard browser. The 3-tier architecture will be employed incorporating three components – front-end software, middleware and back end DB tier. In the envisaged architecture, the entire processing shall take place in these three layers:

- a. Front-end software (client tier) will be responsible for the presentation of information to User.
- b. Middleware (application server tier) is the layer where all business rules will be defined.
- c. Server Software (database server tier) will be responsible for the manipulation and storage of data.

4.1.1.1. Design Considerations

Application will be hosted centralized at MGSIPA, Sector 26, Chandigarh and all the users will access the application over PAWAN (Punjab Wide Area Network – SWAN in Punjab). The application tier will consist of two nodes clustered on a fail-over configuration.

The database tier shall also consist of two servers clustered to provide a highly scalable and available database solution for the proposed applications. Proposed solution shall have adequate redundancies so as to have no single point of failure for the solution. On failure of the primary application server, the 'failover' server shall take over processing. Similarly, on failure of a database server, the other active server shall continue seamlessly, thus providing the desired availability.

The solution landscape shall be architected with following key drivers in mind:

- No Single point of Failure
- High Availability
- Scalability
- Load Sharing
- Performance Objectives

- Optimization of Hardware
- Maintainability
- Security

4.1.1.2. No Single point of failure

There should not be any single point of failure in the proposed solution (at the application, database & the components proposed at data centre level).

4.1.1.3. High Availability & Redundancy

High Availability of application is a key requirement. The project must provide users with timely, continuous access to application - all day, every day. The system must also be able to rebound or recover from any planned or unplanned system downtime, ensuring a minimal impact on the operations.

Availability is the quality aspect of whether the service is present or ready for immediate use. Availability represents the probability that a service is available. Larger values represent that the service is always ready to use while smaller values indicate unpredictability of whether the service will be available at a particular time. Also associated with availability is time-to-repair (TTR). TTR represents the time it takes to repair a service that has failed. Ideally smaller values of TTR are desirable.

4.1.1.4. Scalability

The proposed equipment shall be scalable to cater for the expansion of processor, memory and the number of interfaces. The configuration proposed is expected to have adequate upgrade capability in terms of processors, memory, disk storage, etc. This should be achievable with minimum disruptions to processes and Users.

4.1.1.5. Failover and Load Balancing

All network equipment and devices shall have the capability to failover to a redundant or secondary unit upon failure of the primary unit. Likewise, the load on the primary unit shall be shared with a secondary unit upon the primary unit reaching its capacity.

4.1.1.6. Backup and recovery

Data is an asset, just as personnel, physical resources, and financial resources are assets. Data and information are resources that are extremely valuable for the organization; hence data management processes must be in place to maintain the data. The development of information technology has made effective management of corporate data far more manageable. The Database backup and recovery guidelines have been incorporated in IT solution of edistrict

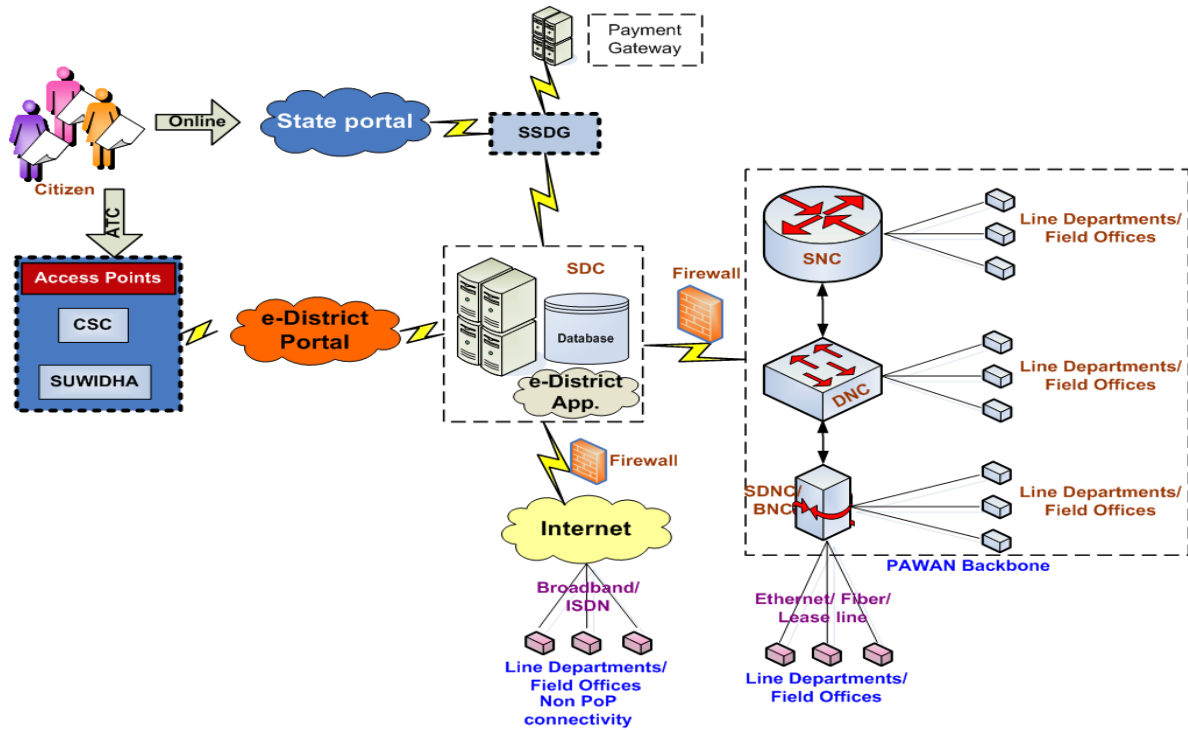
however detailed backup and recovery policies shall be implemented at the time of solution implementation by the vendor. The responsibility of taking backups and testing, as per the policy, lies with SI for the project period.

- I. SI is responsible for safe & secure storage of complete eDistrict data.
- II. SI needs to prepare a backup policy which shall be approved by PSeGS.

4.2. Solution & Technology Architecture

4.2.1. Overview

- III. Under the pilot e-District a centralized architecture (i.e. servers and processing at single and central location) is in place. All requests from internal and external users are being sent to this system, (located at MGSIPA, Sector 26, Chandigarh) for processing. All users access the application through local or remote terminals using a browser.
- IV. The overall technology solution shall be based upon most relevant and suitable architecture standards including standards for Service Oriented Architecture (SOA), XML services & necessary protocols for internet applications, Data Centre standards, Localization (Unicode, Inscript, etc.) standards, W3C standards & GIGW guidelines, etc.
- V. The design should include integration with existing IT infrastructure created under SDC, SWAN, GSK, State Portal, SSDG and any other MMP that is being implemented in the state and requires integration with eDistrict Project. eDistrict Application should be integrated with State Portal and Gateway.
- VI. At present the State Data Centre is under construction stage and the provisional arrangement for placing the servers is made at MGSIPA, Sector 26, Chandigarh. However once the SDC is operational, the System Integrator shall be required to migrate the complete server infra (including data) & associated setup to the SDC. This may also include some data migration activity.
- VII. The indicative Present Architecture is as below:



4.2.2. e-District Application Structure

- I. In Punjab the State Portal / SSDG is under development, the final eDistrict architecture should be compatible with it and should get integrated when the SSDG is operational.
- II. Bidders should clearly understand that the desire of the department is not to create a mere IT Solution but an information infrastructure that will expand, integrate and enhance the functional needs of the department concerned, citizens and other stakeholders. It is in this spirit that the core design and functional requirements are elaborated in the forthcoming sections.
- III. The reference architectures provided in the Integrated Framework for Delivery of e-Services (URL: <http://deity.gov.in/content/e-district-guidelines>) shall be necessarily followed and adopted with appropriate modifications required for the State.

4.3. Scope of Services – Project Implementation Phase

4.3.1. Solution Design

4.3.1.1. Application Study and Design

- I. As Punjab is a pilot state, the e-District application has already been developed as part of the pilot implementation phase.
- II. The source code of the Pilot e-District application shall be handed over to the System Integrator at the start of the project along with other relevant documents like Functional Requirement Specification (FRS), System Requirement Specification (SRS) & Application user manual etc. The existing pilot SI (System Integrator) shall provide all necessary Knowledge transfer related to the Pilot eDistrict application, Source code, and implementation methodology to the State wide roll out SI.
- III. The System Integrator (SI) for the State wide roll out shall be responsible for timely completion of the Knowledge Transfer activity keeping in mind the Project timelines and shall escalate any issue faced in this regard to PSeGS. The State wide SI need to ensure that he has understood the complete details of the existing application from all perspectives and he will have to submit a written confirmation to the PSeGS in this regard.
- IV. After submission of the confirmation, the e-District application shall be under the complete responsibility of the State wide SI and any changes/ modifications required in the same are to be carried out by State wide Roll out SI only.
- V. However PSeGS will give its best efforts to ensure that any further clarification/s required by State wide SI from the pilot SI, regarding the application is provided with. But this shall be possible during the currency of contract of the pilot SI only.
- VI. The pilot application shall be versioned as Ver 1.0 and all subsequent changes (including software bugs/ Changes in workflow/ additional features/ modifications etc.) made in it shall be versioned by SI through proper versioning scheme.
- VII. The high level FRS has been developed by the SPMU (Consultant) and is available along with this RFP in Section 6. The SI shall carry out a detailed application study formulate the System and Software Requirements Specifications documents incorporating the functional specifications and standards provided by the DeitY, GoI and the PSeGS requirements. As a part of the SRS, SI also needs to include the output formats for the services.
- VIII. The SI shall prepare a detailed document on the implementation of e-District Application with respect to configuration, customization, extension and integration as per the requirement of State. The SI shall also prepare a change/reference document based on

changes or deviations from the base version (i.e. ver 1.0) of the e-District Application with appropriate references to all the artefacts /documents provided by DeitY, GoI / PSeGS.

- IX. During the implementation phases (phase I to III) SI also has to prepare a detailed report on the feedbacks given by various officials vis-à-vis e-district application and shall submit the same to PSeGS.
- X. PSeGS shall consult with the concerned State Line departments regarding these suggested changes/ feedbacks and the final list of changes shall be communicated to the SI for making necessary changes in the application, before start of phase-IV.
- XI. SI shall be immediately required to make any small changes required in the application during the implementation phases – I, II & III.
- XII. SI shall be required to develop and implement the necessary changes as defined in the Scope of work of this RFP in the eDistrict application ver1.0 and will have to maintain versioning by using a proper version control system for eDistrict application. However the new version shall be rolled out only after all necessary testing & auditing are completed as per the requirements. Till then the eDA ver1.0 (eDistrict Application) shall only be rolled out across the districts.
- XIII. As part of the application Study, the SI shall be responsible for Preparation of a comprehensive application Study document by studying the legislation, business processes and organization design of the Punjab.
- XIV. The selected Bidder shall perform the detailed assessment of the functional requirements (including localization framework) and MIS requirements and shall include it in the SRS report. SI Shall also as part of the Application Study document incorporate list of additional features that shall result in further improvement in the overall application performance for consideration of the PSeGS.
- XV. The SI will develop standardized physical application input forms for all services under the project.

4.3.1.1.1. Requirements Traceability Matrix:

The SI shall ensure that developed e-District application is fully compliant with the requirements and specifications provided in the RFP such as functional, non-functional and technical requirements. For ensuring this, the SI shall prepare a Requirements Traceability Matrix on the basis of Functional Requirements Specifications (FRS), Non Functional Requirements Specification, and Technical Requirements provided by State (updated, expanded and fine-tuned by the SI). Refer to Section 6 for more details on the non-functional requirements.

4.3.1.1.2. Project Documentation:

The SI shall create and maintain all project documents that shall be passed on to the State as deliverables as per the agreed project timelines. The documents created by the SI will be reviewed and approved by the SPMU & PSeGS. .

Project documents include but are not limited to the following:

1. Detailed Project Plan
2. Documents for updated e-District application
 - a. Detailed Application Study Report
 - b. SRS document
 - c. High Level Design Document
 - d. E-District Application architecture documents.
 - e. ER diagrams and other data modelling documents.
 - f. Logical and physical database design.
 - g. Data dictionary and data definitions.
 - h. Application component design including component deployment views, control flows, etc.
 - i. LLD documents
 - i. Application flows and logic.
 - j. GUI design (screen design, navigation, etc.).
 - i. All Test Plans & All Test Cases
3. Requirements Traceability Matrix
4. Change Management and Capacity Building Plans.
5. SLA and Performance Monitoring Plan.
6. Templates for monitoring e-Transaction volumes and for generating real time MIS
7. Training Plan
8. Complete Knowledge Transfer Plans and
9. Methodology for following
 - a. OS patches,
 - b. Database Management with Pilot database
 - c. Antivirus definitions
 - d. Application patches

The SI shall submit a list of deliverables that they shall submit based on the methodology they propose. The SI shall prepare the formats/templates for each of the deliverables upfront based upon industry standards and the same will be approved by PSeGS prior to its use for deliverables.

All project documents are to be kept up-to-date during the course of the project. The SI shall maintain a log of the internal review of all the deliverables submitted. Soft copy of logs shall be submitted to PSeGS on regular basis.

4.3.1.1.3. Preparation of Software Requirements Specifications (SRS)

As part of the preparation of SRS the selected SI shall be responsible for preparing and submitting detailed requirement specification documents as per IEEE or equivalent standards which meets all the Business, Functional and Technical (including localization) requirements of the departments concerned. The SI shall prepare the SRS documents and have it reviewed and approved by the PSeGS. PSeGS will sign off on the SRS documents on the advice of SPMU.

The SI is required to update the SRS as and when any enhancements / modifications are made to the e-District application till the duration of the Contract

4.3.1.1.4. Preparation of e-District Project Plan

The SI shall prepare a comprehensive e-District implementation and deployment plan in consultation with PSeGS. This implementation document shall also comprise of

- I. Trainings to be provided to the departmental officials at different stages of the project,
- II. Procurement, Deployment and commissioning of required hardware and software,
- III. Data Digitization & Migration,
- IV. Provisioning of network connectivity
- V. Site preparation, etc.

For more details on these refer to further sections of the RFP.

Further, SI will also prepare detailed work plan and estimate the timelines and resources required for configuration, customization, extension, integration, and commissioning of the e-District software as per the DeitY GoI / State requirements. All the plans and frameworks prepared by SI during the duration of the Contract shall be required to seek approval from PSeGS.

4.3.1.1.5. Preparation of e-District Application Design

Detailed Design documents shall include:

- I. Technical Architecture Document (Application, Network, and Security)
- II. The available IT infrastructure available at state shall be a part of the document.
- III. Gap infrastructure
- IV. High Level and Low Level Design.
- V. Database architecture, including defining data structure, data dictionary as per as per requirements of data storage in English and Punjabi with compliance to standards defined by DeitY, GoI/ Punjab Government.

4.3.1.1.6. Sign off Deliverable/ Exit Criteria

- I. Detailed Project Plan
- II. Documents for updated e-District application
 - a. Detailed Application Study Report
 - b. Updated/vetted SRS
 - c. HLD documents
 - d. E-District Application architecture documents.
 - e. ER diagrams and other data modelling documents.
 - f. Logical and physical database design.
 - g. Data dictionary and data definitions.
 - h. Application component design including component deployment views, control flows, etc.
 - LLD documents
 - i. Application flows and logic.
 - j. GUI design (screen design, navigation, etc.).
 - a) All Test Plans & All Test Cases
- III. Requirements Traceability Matrix
- IV. Change Management and Capacity Building Plans.
- V. Design of real time tools for monitoring e-Transaction volumes and for generating real time MIS
- VI. SLA and Performance Monitoring Plan.
- VII. Training and Knowledge Transfer Plans.

4.3.2. Software Development/Customization

4.3.2.1. e-District Functional Modules

e-District MMP aims at electronic delivery of public services at district / sub district level, progressively. While doing so, the four pillars of e-infrastructure i.e. SWANs, SDCs, SSDGs and GSKs (CSC Scheme) will be leveraged and no new infrastructure would be created. Punjab being a pilot state had already selected a set of high volume citizen centric services meeting the guidelines issued by DeItY, GoI. The detailed list of services is provided below:

Sr.	Department Name	Service Name
1.	Personnel Department	Residential Certificate
2.	Social Welfare Department	Caste Certificate (SC/OBC)
3.	Social Security Department	Old age pension
		Financial Assistance to Disabled Persons
		Financial Assistance to Widow & Destitute Women
		Financial Assistance to Dependent children
		Issuance of ID cards
4.	Department of Health	Issuance of Birth / Death / Not Found certificate

Sr.	Department Name	Service Name
		Addition of Name in Birth certificate
		Correction of Name in Birth / Death certificate
		Late entry of Name in Birth / Death certificate
5.	Agriculture Department	New/Renewal of Agriculture Licenses
		Issuance of Duplicate Agriculture license
		Addition in license of Items
		Addition in license of Godown
6.	Food & Civil Supplies Department	Issuance of New Ration Card for APL/ BPL/ Antodaya
		Modification in Ration Card
		Duplicate Ration Card
		Surrender of Ration Card
7.	Home Department	New Arms License
		Duplicate Arms License
		Renewal of License
		Entry of Weapon
		Addition/Deletion of Weapon
		NOC for Sale of Weapon
		Permission to Carry the Weapon
		Extension of Jurisdiction
		Cancellation of License
		Change of Address
		Addition/Deletion of Retainer
		Change of Bore
		Permission for Deposit of weapon in death Case
		Permission for sale / transfer Weapon in Death Case
		Extension of Cartridges
		Issuance of Marriageability certificate
		Solemnized marriage
		Registration of Marriage under HINDU marriage act
		Registration of Marriage under special Marriage act
8.	Revenue Department	Revenue court cases - Issue of notices / Listing of cases
		Govt. dues & Recovery - Issue of notices / Updation of treasury receipts
		Copying service
		Countersigning of documents
		Attestation of affidavit / indemnity bond / surety bond
9.	Department of Rural	Rural Area Certificate

Sr.	Department Name	Service Name
	Development	
10.	Department of Governance Reforms	Right to Information Services
		Grievance Redressal system

4.3.2.2. eDistrict Application

The application for e-District is the most critical component for e-District project. Punjab being a pilot State has already developed an e-District application. This application shall be enhanced for state wide rollout of e-District project.

The Integrated Service Delivery Framework released by DeitY shall be leveraged for developing the application architecture for the State. The details on final reference architecture for the state have been provided in this section in addition to generic requirements.

- I. Design and development of the eDistrict Application as per the FRS and SRS finalized by all stakeholders (PSeGS, SPMU, etc.).
- II. The SI needs to use the existing eDistrict Application, FRS and SRS and update the same as per the State's requirement for State wide roll out of eDistrict.
- III. eDistrict Application should ensure availability of all services, mandatory and optional, in accordance with the BPR done by the SPMU and shall have the following components
 - A. Front end on the State's portal; if State portal is not operational, front end may be designed with migration strategy to State portal after operationalization of State portal.
 - i. The e-District portal is already existing, so new SI will be required to make changes in terms of content updation, design aspects and other such changes proposed by PSeGS.
 - B. Back end for the printing, status update and centralized MIS application.
 - C. Providing automatic acknowledgement with automated date and time stamping.
 - D. Enabling tracking of the status of the application from any authorized office through a unique application ID
- IV. Development of Role based, workflow driven Web based Content Management System (CMS) for contribution of any type of Content to the eDistrict Application including the metadata as specified in SRS. Should support open standards such as HTTP, XML, SOAP, J2EE, and WebDAV to provide maximum flexibility, scalability and ease of deployment. Should also have the feature like:
 - Electronic authoring, Versioning, Lifecycle, Review/approval, Publish

- Document metadata, document versioning, document approval, searching, folders, compound documents, lifecycle management, publishing
 - Content federation, security and auditing, retention management, geographical optimization
 - Functionality that the content is stored in their original file format and / or a picture.
 - Enable the storage of content in various formats including text files, spreadsheet files, video, audio, binary and other.
 - Content manager should support multi-level versioning – major and minor level versioning.
- V. The eDistrict Integrated Framework for Delivery of Services encompasses people, process and content, hence it is implicit to use the Integrated Framework for Delivery of Services solution approach. The eDistrict Integrated Framework for Delivery of Services should uniquely integrate process with content to provide a unified, template based solution designed environment. It should also include business rule management and collaboration capabilities to help optimize workload & outcomes. This should help eDistrict application users and back office operation in application development with minimum efforts
- VI. The user should be given a choice to interact with the system in local language (Punjabi) in addition to English. The application should provision for uniform user experience across the multi lingual functionality covering following aspects:
- A. Front end web portal in local language i.e. Punjabi
 - B. E-forms (Labels & Data entry in local languages) Data entry should be provided preferably using the Enhanced Inscript standard (based on Unicode version 6.0 or later) keyboard layout with option for floating keyboard.
 - C. Storage of entered data in local language using UNICODE (version 6.0 or later) encoding standard.
 - D. Retrieval & display in local language across all user interfaces, forms and reports with all browsers compliant with Unicode version 6.0 and above.
 - E. Facility for bilingual printing (English and Punjabi)
 - F. “Sakal Bharti” font (compliant to UNICODE version 6.0) to be used for Punjabi data and content. Latest version of the font is available on www.ildc.in

[Localisation of application as per the state requirements in terms of Punjabi language and other needs. The eDistrict Application should be provisioned for uniform user experience across the multi-lingual functionality as per the state requirements]

VII. Application should have a generic workflow engine. This generic workflow engine will allow easy creation of workflow for new services with minimum technical programming support and thus enable the State government to create new services as and when required by the various Departments without creating a change request. Also enable business process change at any time without affecting the operation of end users. At the minimum, the workflow engine should have the following features :

- a. Feature to use the master data for the auto-populating the forms and dropdowns specifically with reference to :
 - i. Name of District, Tehsils, Blocks & Villages
 - ii. Designation of officials involved in the processing of the application
- b. Creation of application form, by “drag & drop” feature using meta data standards
- c. Defining the workflow for the approval of the form, by providing various options like:
 - i. First in First out
 - ii. Defining a citizen charter/delivery of service in a time bound manner
- d. Creation of the “output” of the service, i.e. Certificate etc.
- e. Automatic reports
 - i. of compliance to citizen charter on delivery of services
 - ii. Delay reports, etc.
- f. Functionality for design, implementation, simulation, optimization and re-deployment of business processes.
- g. Functionality for systematic version control processes.
- h. Functionality for simulation and analysis of business processes.
- i. "Should support active content, where content is made available to users at the right time in the right context without them having to search for it. Need smooth integration with content management"
- j. Tool for modelling the process, allowing end users to design processes without the need for programming.
- k. Able to react to system events such as timers or entering a new document in the system.
- l. inclusion of Business Rule Management System with collaborative rule management for business teams and robust, scalable and precise rule execution
- m. Possibility of conditional branching in business processes.
- n. Parallel routing functionality in business processes.
- o. Route tasks to multiple users and systems simultaneously.
- p. Store all user actions undertaken in processing tasks (audit log).

- q. React to system events such as timers or entering a new document in the system.

Easier to handle following: Change Request / New Reports / New Service Creation / New Form creation

SI shall also provide training to the officials nominated by PSeGS, on addition of new service in the application.

VIII. The application should have a module for management of digital signature including issuance, renewal and suspension of digital signatures based on the administrative decisions taken by the State. In case of any change (transfer, promotion, leave, suspension, termination, superannuation etc.) of the officials under e-District Project, a copy of order should be marked to the State Level digital signature management team for assigning and revoking of the access rights.

- As the eDistrict envisages instant delivery of certain services to the citizen on the bases of digitally signed databases. To fulfil this requirement, the SI needs to develop data entry modules, where the data shall be entered and digitally signed and stored in the eDistrict database. Using this data a digitally signed document could readily be generated and delivered to the citizen.
- It is also possible that the data in such digitally signed databases would undergo periodic revision and updation. Hence, the provision must be made for
 - digitally signing different databases used in different applications by appropriate authorities,
 - effecting changes in digitally signed documents
 - tracking of database records which are digitally signed and which are not so signed
 - posting of appropriate notifications to the users in case of demand for service in respect of which the relevant data record has not been digitally signed by the competent authority
 - verification of digital certificates (e.g. a website to authenticate a particular certificate on the basis of certificate details or barcode)
- **Integration of Digital Signatures with e-District Application:** The eDistrict portal should be made accessible to government official users and to GSK users through secure user id and password. The biometric/digital signatures need to be integrated for enabling authenticity of the approving authority. In scenarios of multiple approvals there should be minimal increase in the size of the digitally signed file
- **Training on use of Digital Signatures:** As the eDistrict project entails significant amount of field verification and relevant updating of records, digital signatures

have to be used by various levels of officials. These officials may also keep on changing due to transfers/ superannuation, etc. , hence the System integrator should ensure :

- A one-time training to all the concerned officials in the usage of digital signatures,
- As and when required training / on-demand web based training for the new officials taking charge of eDistrict service provisioning.

IX. Asset Management: As mentioned in Section 4.5 (II), there is a requirement to have an asset management module under e-District project, to monitor the assets used for e-District project at various offices and procured under various Schemes.

X. Transaction Report & accounting module: The e-District services are also to be provided through the GSKs (CSC Scheme) in the State. The State will soon be finalizing the payment mechanism to the GSKs / SCAs. (The GSKs are aligned to various organizations - SCAs). For e-District project to succeed it is important to ensure that there is a streamlined method to calculate the fee payable to the SCA and the GSK operator. The SI therefore has to ensure that the e-District application has the capability to monitor the service & financial (including service fees) transactions happening through GSKs and should be able to generate MIS report as per the requirement of PSeGS/ any other agency nominated by PSeGS. It is required that a separate module for calculation of such fee (and payments) should be developed. On the same lines application should be able to generate MIS for individual Suwidha data entry operators with aggregation at individual Suwidha level then at District level and State level. The format for these MIS reports shall be finalized by PSeGS.

XI. e-Transaction & SLA Monitoring Tools

(1) The PSeGS should be able to measure and monitor the performance of the deployed infrastructure at SDC and at Department offices and all SLAs set out in this RFP. More importantly, the PSeGS should be able to monitor in REALTIME, the number of citizens touched through e-Services each day, month and year, through appropriate tools and MIS reports.

(a) The Dash Board should provide Real Time Pendency Reports for all services across state

(b) Real time view of the status of the services under consideration at every stage and alerts should be generated

(c) Online configurable dashboards, reports, data analysis for decision support system

(d) Inclusion of content based analytics with the scale of enterprise search. It should help to derive trends, patterns and relationships from unstructured data and related structured data

(e) Dashboard shall be configurable service wise.

(2) The System Integrator shall facilitate monitoring of infrastructure hosted at the SDC.

(3) For monitoring of uptime and performance of infrastructure deployed at field Offices, the selected Bidder shall have to provision for monitoring and measurement tools, licenses, etc. required for this purpose.

(4) System Integrator shall provide a defect tracking tool on the test environment where all the stakeholders can put the defects/ bugs encountered. This tool shall help in keeping a track on the defect resolution.

XII. The e-District application should also be integrated with key initiatives of DeitY namely Portal Services, Citizen Contact Centre, Mobile Platform/ Gateway Services / National Service Delivery Gateway (NSDG) / State Service Delivery Gateway (SSDG), National Service Directory, Payment Gateway, Language Switch, Open Data, E-authentication including Aadhaar, Geographical Information System/ Global Positioning System, E-Gov Application Store, Document Repository, Certifying Authority etc.

a. The details for integration with other initiatives are given below.

Name of the initiative	Purpose for integration	Contact Agency	Agency Person details	Deity Nodal Person Details
SSDG	Integration with existing application	CDAC	Mr. Zia Saquib, Executive Director, CDAC, Mumbai. Telephone:+91-22-26201606	Ms. Kavita Bhatia, Additional Director, DeitY. Telephone: +91-11-24364729
Payment Gateway	e-payment	NDML	Mr. Sameer Gupte, Vice-President, NDML. Telephone: +91-9820039921	Ms. Kavita Bhatia, Additional Director, DeitY. Telephone: +91-11-24364729
MSDG	Services over mobile phone	CDAC	Mr. Zia Saquib, Executive Director, CDAC, Mumbai. Telephone:+91-22-26201606	Ms. Kavita Bhatia, Additional Director, DeitY. Telephone: +91-11-24364729
e-Authentication	Validation of beneficiary-using biometric	CDAC	Mr. Zia Saquib, Executive Director, CDAC, Mumbai. Telephone:+91-22-26201606	Ms. Kavita Bhatia, Additional Director, DeitY. Telephone: +91-11-24364729

Name of the initiative	Purpose for integration	Contact Agency	Agency Person details	Deity Nodal Person Details
AADHAR	Applicant authentication	UIDAI	Mr. Tejpal Singh, ADG, UIDAI, New Delhi. Telephone: +91-11-23462611	Mr. Gaurav Dwivedi, Director, DeitY. Telephone:+91-11-24301218
Localisation	Localisation of the application as per the requirement of the State / UT in terms of local language and other needs.	CDAC	Mr. Mahesh Kulkarni, Associate Director, CDAC, Pune. Telephone: +91-20-25883261/25503402	Ms. Swaran Lata, Director, DeitY. Telephone: +91-11-24301272

- XIII. Complete mobile enablement of the e-District applications and services including all appropriate channels such as SMS / USSD / IVRS and development of corresponding mobile applications to the eDistrict applications and services leveraging the Mobile Service Delivery Gateway (MSDG) and the Mobile App Store developed by DeitY. *(For High Level Functional Requirements for the Mobile Application refer to Section 6 of the RFP).*
- XIV. Should Support common protocol adapters for connection to back office systems (i.e. HTTP, HTTPS, SOAP, XML for format)
- XV. Should support encrypted messaging between server and client components.
- XVI. Application platform should supports the following smart phone mobile OS (Android 2.2, 2.3, 3.0, 4.0 and above, iOS 4, 5 and above, Blackberry 6.0 and above, Windows Phone OS 7.5, Mobile Web App)
- XVII. Should support integration with native device API.
- XVIII. Should support utilization of all native device features.
- XIX. Should support encrypted messaging between server and client gateways.
- XX. Should support the ability to log all messages that pass through the server.
- XXI. Support an app store to distribute mobile apps to authenticated and authorized users.
- XXII. Should support encrypted storage of application and application data.
- XXIII. The application should be capable to work with MS SQL server.
- XXIV. Support the target packaging components like (Mobile Website, Hybrid App, Native App, Web App and Application Development)
- XXV. Operation and Maintenance of eDistrict Application including the suggested changes as indicated by the states for 5 years (4th & 5th year at the discretion of PSeGS) from the date of Go-Live.
- XXVI. Implement / add any additional forms of State Departments as and when the departments are ready for delivering.

- XXVII. The IPR and the Source Code of the eDistrict Application shall be with the State Government.
- XXVIII. The SI shall indicate the type of services to be made available using IVRS, SMS, and Helpdesk.
- XXIX. Detailed User and Operational Manual to be provided to each department, whose services will be hosted on eDistrict Application.
- XXX. The application should have a web interface and should publish online transaction volume data for each service for each district & GSK.

Offline Service Capabilities:

The Offline capability should be developed and the System shall allow to import and submit the saved e-form that has been filled offline. Hence, the offline capability should be additional feature of application which can be utilized in specific conditions

- I. It is required to develop offline server capabilities for e-District application so that at-least one counter at each Suwidha centre/ GSK in the district is able to provide services to the citizen during failures like server failure at data centre, bandwidth failure etc.
- II. When the services at SDC get resumed, the work done at offline server machine should be synchronized with central servers immediately and the offline server machines start functioning under the control of central server.
- III. As long as the services are running from state data centre, the offline server machine will not function independently; these will run under control of state servers like any other browser based client.
- IV. Any changes in the Online application shall automatically get updated in the offline module, once the two are synchronized.

Should also have the features like

- I. Security and compression of form data on network and storage
- II. Secured and encrypted data - For synchronization between offline client to backend application and data server
- III. Allow offline client data stored locally to be used only with the application
- IV. Security features: includes client security features like credential (key) store, two-factor authentication, enhanced Web services security, RSA encryption
- V. Standards-based programming model from the OSGi
- VI. Offline solution should also support Signed Features, is FIPS 140-2 compliant, provides local encryption and time stamping for signed plug-ins

At present the State do not require development of any additional module of service. All the services developed under the pilot implementation scheme shall only be taken up for State wide roll out. However, as already mentioned in previous sections that SI need to develop a configurable application so that any new service could be added by state with minimum efforts required and no change request.

4.3.2.3. Guidelines for Reusing eDistrict Pilot Applications

- I. The pilot e-District application shall be STQC certified and thereafter will be used for State wide roll out.
- II. The System Integrator needs to ensure that the existing application developed during pilot phase need to complete mandated STQC tests and compliance need to be evaluated by the SPMU/ SI for scaling up as well as for improvement in the system usability, design and maintainability

4.3.2.4. Support for PKI based Authentication and Authorization

The solution shall support PKI based Authentication and Authorization, in accordance with IT Act 2000, using the Digital Certificates issued by the Certifying Authorities (CA) such as MTNL or NIC. In particular, 3 factor authentication (login id & password, biometric and digital signature) shall be implemented by the selected Bidder for officials/employees involved in processing citizen services as per the Functional requirement specification of the e-District services specified in Section 6.9.

4.3.2.5. Interoperability Standards

Keeping in view the evolving needs of interoperability, especially the possibility that the solution shall become the focal point of delivery of services, and may also involve cross-functionality with the e-Government projects of other departments / businesses in future, the solution should be built on Open Standards. The state already has other applications deployed and running for delivering services to citizens. The SI shall ensure that the application developed is easily integrated with the existing applications in the State.

Every care shall be taken to ensure that the code does not build a dependency on any proprietary software, particularly, through the use of proprietary 'stored procedures' belonging to a specific database product. The Solution components shall support multiple database platforms i.e. Oracle, DB2, MS-SQL etc.

4.3.2.6. Scalability

One of the fundamental requirements of the application is its scalability. The architecture should be proven to be scalable (cater to increasing load of internal and external users and their transactions) and capable of delivering high performance for at-least five years from the date of deployment. In this context, it is required that the application and deployment architecture should provide for Scale-Up and Scale out on the Application and Web Servers, Database Servers and all other solution components. Also Scalable from both hardware and software with horizontal and vertical scalability.

The system integrator should take all necessary care in customizing/ enhancing the existing pilot e-District application so as to meet the above mentioned scalability requirement.

4.3.2.7. Security

The systems implemented for project should be highly secure, considering that it is intended to handle sensitive data relating to the citizens of the state. The overarching security considerations are described below.

- I. The security services used to protect the solution shall include: Identification, Authentication, Access Control, Administration and Audit and support for industry standard protocols.
- II. The solution shall support advanced user authentication mechanisms including digital certificates and biometric authentication.
- III. Security design should provide for a well-designed identity management system, security of physical and digital assets, data and network security, backup and recovery and disaster recovery system.
- IV. The solution should provide for maintaining an audit trail of all the transactions and should also ensure the non-repudiation of audit trail without impacting the overall performance of the system.
- V. The overarching requirement is the need to comply with ISO 27001 standards of security.
- VI. The application design and development should comply with OWASP top 10 principles

4.3.2.8. Application Architecture

- I. It has been proposed that the applications designed and developed for the departments concerned must follow some best practice and industry standards. In order to achieve the high level of stability and robustness of the application, the system development life cycle must be carried out using the industry standard best practices and adopting the security constraints for access and control rights. The various modules / application should have a common Exception Manager to handle any kind of exception arising due to internal/ external factors.
- II. Similarly the modules of the application are to be supported by the Session and Transaction Manager for the completeness of the request and response of the client request. The system should have a module exclusively to record the activities/ create the log of activities happening within the system / application to avoid any kind of irregularities within the system by any User / Application. Every citizen request should be stored with complete log of approvals, supporting document, signatures, time and stamp of approver as a single case

4.3.2.9. Existing Application Architecture

Application Profile, size and technical details		
Item	Description	Comments
Compliance		
Browser support	Tested with all popular desktop browsers such as IE (all versions), Google Chrome, Firefox, Opera etc.	Not tested for smartphone or tablet based browsers
Web Interface	W3C specifications	
Information access/transfer protocols	SOAP, HTTP/HTTPS	
Interoperability	Web Services, wcf	
Photograph	JPEG (minimum resolution of 640 x 480)	
Scanned documents	TIFF (Resolution of 600 X 600 dpi), PDF	
Digital signature	RSA standards.	Class 3 signatures are being used
Document encryption	PKCS 7 specifications	
Application development environment		
Application Server	IIS 7.0	
CLR (common Language Runtime)	MS Dotnet 4.0, 3.5	
Language	C#	
Stylesheets	CSS 2.0	
Dependencies	Enterprise Library	
Web client add on components	Jquery, JS, AJAX	
Third Party Components	Yes	
Database	Microsoft SQL 2008 R2	
Directory Services	Microsoft Active Directory	
Authentication	MS AD	
Authorization	Application DB, encrypted	
Audit Logs	IIS Logs, SQL Logs, Custom Application Audit trail function	
Approximate Number of parameters controlled by application web config file	200	
Tiers and Separation	Application has been built with separation of 3 tiers (UI, Application Logic and Database)	
Forms Configuration	Custom Forms designer, persists to db layer	
Workflow Configuration	Custom Workflow designer, persists to db layer	
Business Rules	Custom code	

Application Profile, size and technical details		
Item	Description	Comments
Reports/Doc Generation/MIS	MS SQL reporting services, StimulSoft 4.x	
Exposed interfaces	Major functionality is exposed as consumable web services and as WCS interfaces	
Approximate Number of exposed interfaces	90	
Details of Web tier		
Enabled for NLB	Yes	
Enabled for https	Optional	
Enabled for Session controls	Yes	
Enabled for traffic monitoring	Yes	
Application Port	Configurable, Optional	
Details of Application tier		
Brief description	Application tier in turn is separated into further layers of access control, application logic, middleware, workflow, Data Container, DAC, audit trails, user logs, and archival	
Approximate Number of Classes/Programs/Interface (Independent)	1200	
Approximate Total lines of Code	850,000	
Approximate Number of lines of Business Logic code (code behind)	650,000	Does not include code for pre-built or third party components or UI (ASPX/html)
Approximate Number of lines of UI code (ASPX/HTML/UI, JS,CSS,Jquery,AJAX etc.)	200,000	
Approximate number of Forms	130	
Approximate number of workflow processes	50	
Approximate number of Reports/DoCGen/MIS	300	
Details of database tier		
Approximate Number of tables/Entities	400	
Approximate Number of Master tables	200	
Approximate Number of transaction tables	80	
Approximate Number of internal application control tables	120	

Application Profile, size and technical details		
Item	Description	Comments
Approximate Number of stored procedures	300	
Approximate Number of triggers	60	
Approximate Number of views	400	
Approximate Number of functions	100	
Database clustered	Yes	

The entire processing in the final e-District solution should take place in 3-tier architecture.

4.3.2.10. High Level Design (HLD)

Once the SRS are approved, the SI shall complete the High Level Designing and all HLD documents of all the functionalities, integration with existing application and external application. The SI shall prepare the HLD and have it reviewed and approved by the PSeGS. PSeGS will sign off on the HLD documents based on the advice of SPMU.

4.3.2.11. Detailed (Low Level) Design (LLD)

The LLD shall interpret the approved HLD to help application development and shall include detailed service descriptions and specifications, application logic (including “pseudo code”) and UI design (screen design and navigation). The preparation of test cases will also be completed during this stage. The SI shall have the design documents reviewed and approved by the PSeGS. PSeGS will sign off on the LLD documents based on the advice of SPMU.

4.3.2.12. Test Plan

Once the SRS is approved and design is started, the SI shall prepare all necessary Test Plans (including test cases), i.e., plans for Acceptance Testing. Test cases for Initial and Final User Acceptance Testing shall be developed in collaboration with domain experts identified at the PSeGS. Initial and Final User Acceptance Testing shall involve Test Case development, Unit Testing, Integration and System Testing, Functional testing of Application, Performance testing of the Application including measurement of all Service Levels as mentioned in this RFP and finally SI shall also carryout Load/ Stress testing. The SI will submit the test plans and test result reports to the PSeGS for comprehensive verification and approval.

4.3.2.13. Requirement on Adherence to Standards

e-District application must be designed following open standards, to the extent feasible and in line with overall system requirements set out in this RFP, in order to provide for good inter-operability with multiple platforms and avoid any technology or technology provider lock-in.

The solution components should support standards like XPDL, BPMN, Web Services, XML, J2EE, Java, .Net, REST, CMIS. Should Support process standards such as BPMN for process modelling and XPDL for process definition and execution

Easily design and use of Web 2.0 user interface for processing tasks. WEB 2.0 user interfaces should have the functionality of the automatic linking of independent components of the user interface. Should provide LDAP v3 Directory Support

Should support integration with backend server components on standard protocols like REST, SOAP, Web Services

4.3.2.14. Compliance with Industry Standards

In addition to above, the proposed solution has to be based on and compliant with industry standards (their latest versions as on date) wherever applicable. This will apply to all the aspects of solution including but not limited to design, development, security, installation, and testing. There are many standards that are summarised below. However the list below is just for reference and is not to be treated as exhaustive.

- I. Portal development W3C specifications
- II. Information access/transfer protocols SOAP, HTTP/HTTPS
- III. e-District DeitY, Gol guidelines.
- IV. Photograph JPEG (minimum resolution of 640 x 480 pixels)
- V. Scanned documents TIFF (Resolution of 600 X 600 dpi)
- VI. Biometric framework BioAPI 2.0 (ISO/IEC 19784-1:2005)
- VII. Latest HTML standards
- VIII. Compliance to W3C (WCAG for accessibility, etc.) standards and GIGW guidelines

4.3.2.15. Specification

- I. Finger print scanning IAFIS specifications
- II. Digital signature RSA standards
- III. Document encryption PKCS specifications
- IV. Information Security to be ISO 27001 compliant
- V. Operational integrity & security management to be ISO 17799 compliant
- VI. IT Infrastructure management ITIL / EITM specifications
- VII. Service Management ISO 20000 specifications
- VIII. Project Documentation IEEE/ISO specifications for documentation
- IX. The SI shall adhere to all the standards published by the Department of Electronics and Information Technology, Government of India.

4.3.2.16. State Specific Requirements

SI shall be completely responsible for successful implementation of end to end e-District project in the State of Punjab as per the requirement of PSeGS/ Government of Punjab and in lines of DeitY, Gol., Guidelines.

The System integrator would be required to coordinate with all the stakeholders & support PSeGS while interacting with various agencies/ officials at State/ District/ Block level during the course of the project.

An indicative list of specific requirements of the State is detailed below; however, final specific requirements shall emerge from the detailed application Study to be conducted by Selected Bidder.

- SI has to suggest and provide a Document management system (DMS). The requirement under DMS is as following:
 - The system should be able to manage the supporting documents submitted by the citizen so that there is no duplication of documents submitted by citizen while availing different services under eDistrict. For this purpose the System has to create and intelligently manage citizen/ applicant profile.
 - The data in the present application shall be stored in such a fashion that its migration to DMS is very smooth without any technical issue.
- The solution should be able to deliver certificates which are digitally signed at the server level.
- During the complete application management (customization, development, Modification etc.) SI has to follow ITIL standards.
- The final outputs shall be stored in the shape of Datasets and digitally signed PDF shall be generated as and when required. The application shall have the capability to take care of any increase in number of fields in the output.

4.3.2.16.1. Sign-off Deliverables / Exit Criteria

- I. System Requirement Specification (SRS)
- II. High Level and Low Level Design
- III. Functional and non-functional testing
- IV. Fully functional eDistrict Application
- V. User and Operational Manual for eDistrict Application

4.3.2.17. Obtain STQC Certification for updated version of eDistrict Application

The SI will be responsible for engaging STQC to conduct the assessment / review for the system before “Go Live”. The SPMU shall have the right to audit and inspect all the procedures and systems relating to the provisioning of the services. If there is any change / addition in the application’s functionality then the SI will have to obtain the STQC Certification for the changes / additions.

SI shall ensure the following points are duly addressed for successful completion of STQC Certification:

- I. Successful completion of Application Audit. Application audit will include:
 - A. Functionality audit that will map the functionality delivered to the FRS agreed upon during development phase.

- B. The application is certified from the localization perspective
- C. Identify the nature and type of transactions being processed by the application systems.
- D. Determine systematic measures implemented to control and secure access to the application programs and data including password controls, user authentications, roles and responsibilities, audit trails and reporting, configuration and interface controls, etc.
- E. Review of database structure including:
 - 1. Classification of data in terms of sensitivity & levels of access
 - 2. Security measures over database installation, password policies and user roles and privileges
 - 3. Access control on database objects – tables, views, triggers, synonyms, etc.
 - 4. Database restoration and recoverability
 - 5. Audit trails configuration and monitoring process
 - 6. Network connections to database
- F. Review of Network and Website will include:
 - 1. Penetration and vulnerability testing
 - 2. Security exposures to internal and external stakeholders
- G. Definition and Implementation of Security Policies and Controls will include:
 - 1. Define and implement backup process, including schedule, storage, archival and decommissioning of media
 - 2. Define physical access controls review (over DC and other critical area)
 - 3. Define IT Change Management process, Incident Management process – covering identification, response, escalation mechanisms
 - 4. Define and implement Anti-virus (malware) controls – patching, virus definition file update

4.3.2.17.1. Sign-off Deliverables / Exit Criteria

- I. Sign off from PSeGS
- II. STQC Certification

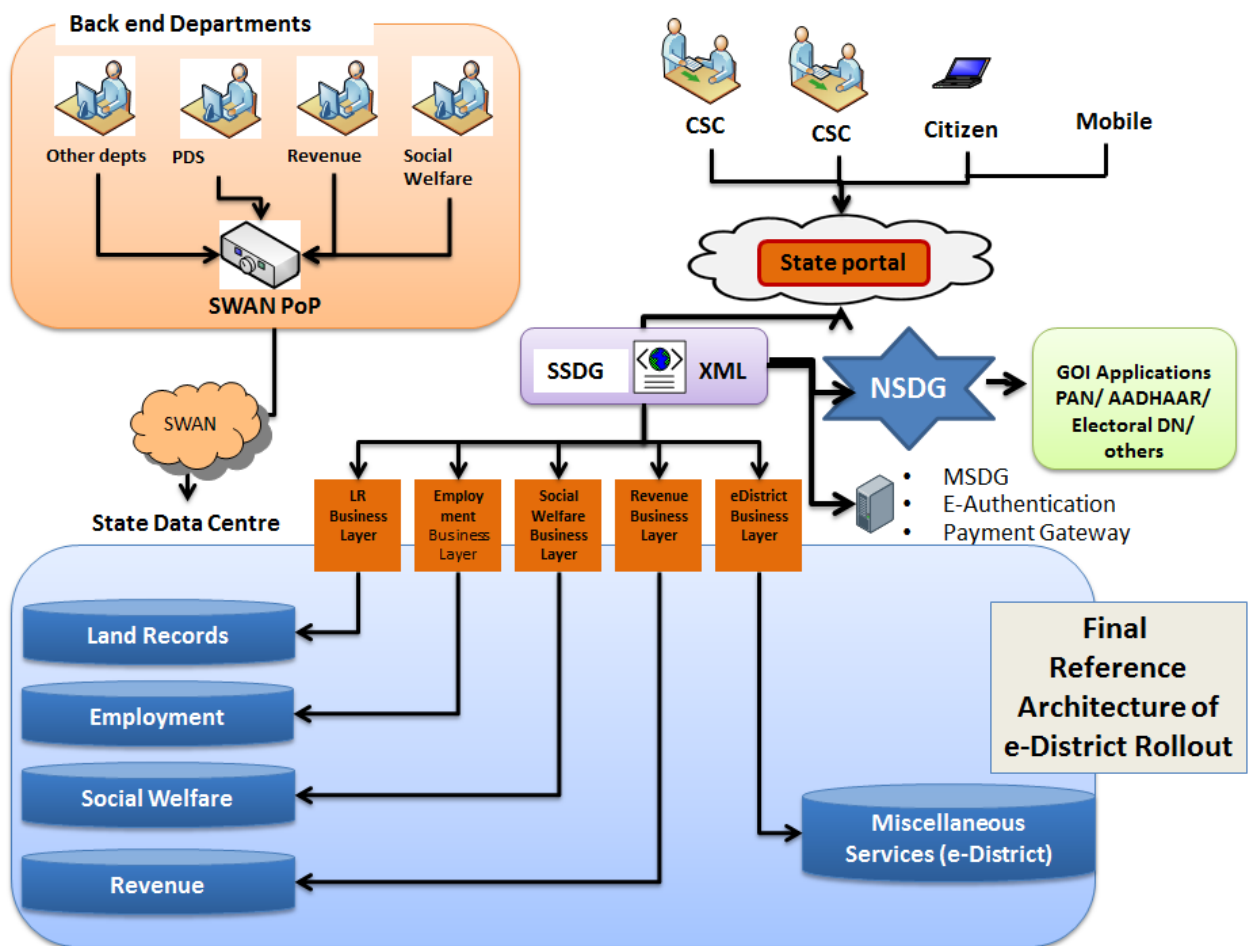
During any stage of the project implementation, PSeGS may ask the SI to station the development team in Chandigarh/ or at a place decided by PSeGS, at its own cost. .

4.3.2.18. Alignment with Integrated Framework

The eDistrict application should integrate with SSDG and provide access to citizens for eDistrict services through State Portal. It is envisaged that over a period of time all the existing state applications which have their own independent database and workflow and are identical to e-

District should be made available on State Portal through the SSDG. The application may be States' own applications or adopted applications.

It is envisaged that gradually most of the services of e-District will move to their independent departmental application / MMPs. Hence the e-District is a “self – limiting” project offering services to the citizens as an interim measure. Thus e-District application plays a limited role for “miscellaneous services” which have been taken under e-District scheme as they do not have their own workflow and database. This reference architecture which should be achieved over a period of time is depicted below.



The key functionalities required are as follows.

- The SAP and SP Connectors will need to connect the e-district Business Layer. This would help in routing requests and responses to back-end departments within a stipulated time period.
- Design and implement an accounting module to keep track of all the transactions service category wise, department wise and break down of transactions SCA, VLE, DeGS. Etc. wise.

- MIS of number of transactions including name of service and category of service on time and geographical scale should be published on e-District portal.
- Use e-authentication (including Aadhaar for citizens), e-payment, Digital signature and Mobile gateway.
- As and when required, migrate the data available in eDistrict database to newly created respective department database.

4.3.2.18.1. SSDG

- I. The Integrated Service Delivery Framework envisages centralized architecture for each MMP at the State level. The application software will be hosted in the State Data Centre. Integration across States shall be enabled, through mandatory adherence to technical specifications and e Governance standards.
- II. The solution architecture of the e-District project envisages a centralised application and database and will leverage the core e-infrastructure of State Wide Area Network, State Data Centre and State Service Delivery Gateway.
- III. The e-District MMP envisages centralised architecture at the state level with common application software for each of the identified services for all the districts of the state. The application software will be hosted in the SDC.
- IV. Integration across states shall be enabled, through mandatory adherence to technical specifications and e Governance standards. The detailed guidelines in this regard will be issued by Department of Electronics and Information Technology (DeitY) Government of India separately.

4.3.2.18.2. Payment and SMS Gateway

- I. System integrator shall ensure continuity and management of a payment gateway, SMS gateway and any other components required to meet the functional and Quality-of-Service requirements of the RFP.
- II. Payment Gateway should allow net banking and debit card payments through various banks in the country besides payments through credit cards (VISA, Mastercard and any similar initiative by Govt. of India).
- III. SI shall be required to make necessary integration of the Payment gateway & SMS gateway with the e-District application. The service provider for Payment gateway & SMS gateway shall be provided by PSeGS to the SI.

4.3.2.19. Human Resource Requirements

The SI is expected to provide technical and operational support for the project implementation. The SI is required to provide at the minimum following resource persons as mentioned below:

Sr.	Position	Number of Resources
1.	Project Manager	1
2.	Associate Project Manager (Division Level)	5 (One at each division)

3.	System cum Network Administrator	1
4.	Database Administrator	1
5.	Application Lead (System Analyst cum Programmer)	1
6.	Technical Support Lead (District Level)	20 (One at each district)
7.	Helpdesk Executive	2

An indicative list of activities to be performed by the deployed resources for existing system support is:

- I. Project Manager shall be the SPoC (Single Point of contact) to the PSeGS/SPMU/ Department for the implementation of the project.
- II. The other staff shall function based on the scope of work of the RFP and contract signed between SI and PSeGS.
- III. If required SI shall provide additional manpower to complete the work/task within timelines. While during the tenure of the project the PSeGS can instruct SI to change the manpower at any location as per the requirements of PSeGS/Department.
- IV. SI will provide the list of actual deployed manpower on monthly basis.
- V. The qualification and experience requirements of these resource persons are mentioned in Form 7 and 8 of Volume 1 of the RFP.
- VI. SI will ensure that all the resources deployed at any location are easily approachable over mobile phones. SI will provide the contact details of the manpower at the time of commencement of operations. SI will also ensure that the proposed resources will not be changed during project implementation without explicit approval of the PSeGS.
- VII. The PSeGS reserves the right to evaluate the performance of the resource persons deployed on the project by SI and ask for a suitable replacement in case of unsatisfactory performance by any of the resource persons deployed to support the project.
- VIII. The resources shall be required to maintain a daily attendance record as per the mechanism established/ agreed by PSeGS.
- IX. The equipments being supplied, installed & commissioned under this proposal are critical in nature. Therefore all the manpower provided by bidder shall come under the purview of Information Technology Act, 2000 of Govt. of India.

4.3.2.20. Resource Penalties

Resource penalties shall be applicable on the following mandatory resources

- I. Project Manager
- II. Associate Project Manager (Division Level)
- III. Technical Support Lead (District Level)
- IV. System cum Network Administrator
- V. Database Administrator

VI. Application Lead (System Analyst cum Programmer)

Note: Associate Project Managers, at Division level, can be relieved after the completion of Phase –IV.

4.3.2.20.1. Penalties on Resources:

S. No.	Parameter	SLA	Penalty
1.	Shortfall of attendance of Mandatory resources	If a resource is absent for more than 8 days per quarter or 5 consecutive working days without any reasonable cause, and then the resource will have to be replaced, if asked by PSEGS.	Rs. 50,000 replacement penalty for each absentee related replacement during the term of the project in addition to penalties for replacement of resources as applicable under Sr. No. 4
2.	Attendance (i.e. absenteeism of resource without any replacement)	Attendance less than 90.0 % per month	Penalty will be applicable as per resource category man month rate provided in the commercial bid on pro-rata basis for the period of absence.
3.	Substitution of resources from those CVs provided during the technical evaluation	No substitution of resources will be allowed whose CVs have been provided along with the technical bid for the period T + 120 days (as per RFP Volume 2).	A Penalty of INR 3 Lakhs per substitution of resources of those who's CVs have been provided along with the technical bid will be applicable.

S. No.	Parameter	SLA	Penalty																								
4.	Replacement of resources	<p>Ideally, Resources initially deployed shall not be replaced during the tenure of the project.</p> <p>In case resources are replaced after T+120 days (as per RFP Volume 2), following penalties will be applicable.</p>	<p>For Project Manager the following Penalty will be applicable</p> <table border="1"> <thead> <tr> <th>S. No.</th> <th>No. of Replacement</th> <th>Penalty/Replacement (INR)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>First</td> <td>2,00,000</td> </tr> <tr> <td>2.</td> <td>Second</td> <td>4,00,000</td> </tr> <tr> <td>3.</td> <td>Third or more</td> <td>8,00,000</td> </tr> </tbody> </table> <p>The following penalty will be applicable for the resources mentioned below:</p> <ul style="list-style-type: none"> I. Application Lead (System analyst cum Programmer) II. System cum Network Administrator III. Database Administrator IV. Technical Support Lead V. Associate Project Manager <table border="1"> <thead> <tr> <th>S. No.</th> <th>No. of Replacement</th> <th>Penalty/Replacement (INR)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>First</td> <td>1,00,000</td> </tr> <tr> <td>2.</td> <td>Second</td> <td>1,50,000</td> </tr> <tr> <td>3.</td> <td>Third or more</td> <td>2,00,000</td> </tr> </tbody> </table>	S. No.	No. of Replacement	Penalty/Replacement (INR)	1.	First	2,00,000	2.	Second	4,00,000	3.	Third or more	8,00,000	S. No.	No. of Replacement	Penalty/Replacement (INR)	1.	First	1,00,000	2.	Second	1,50,000	3.	Third or more	2,00,000
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1.	First	1,00,000																									
2.	Second	1,50,000																									
3.	Third or more	2,00,000																									
5.	Knowledge Transfer (KT) Any Substituted/ Replaced resource must have been imparted at least 25 working days of Knowledge transfer (KT) by the outgoing resource.	Knowledge Transfer for at least 25 days.	A penalty of INR 50,000 for every week will be applicable if the KT is not provided for minimum 25 days to the new resource.																								
6.	Prior approval of PSeGS before any resource substitution/ replacement	if the SI fails to provide the replacement as per the satisfaction of the department (as per RFP guidelines),	A penalty of 200% of applicable Man month rate as per commercial bid shall be imposed for the resource being substituted/ replaced. The penalty will be applicable for the period for which the resource remains unavailable.																								

Note:-

1. Any replaced / substituted resource must qualify the RFP criteria and shall be approved/ evaluated by the PSEGS. The required documents for evaluation must be provided to the PSEGS as per standard format of technical bid. PSEGS may ask for extra documentation for support wherever required.
2. In case of absence (apart from allowed leaves) of a resource during contract period, no payment will be made for the days a resource is absent (per day payment will be calculated by dividing man-month rate by number of working days in that month). In addition a penalty as per above table will be levied on such absence.
3. All above penalties are applicable till the Go-Live of the Project.
 - a. However during O & M phase penalties as per above table Sr.No. 2, 5 & 6 shall only be applicable.
7. Working Hours / Days
 - a. When any resource deployed on-site on the project, normal working hours of PSEGS/concerned Districts for which resource has been deployed shall be applicable. For any calculation purpose, half day shall be calculated in proportion to the normal working.
 - b. The holiday schedule of the Punjab State Government shall be applicable for all on-site resources for any calculation purpose.
 - c. The daily attendance of the on-site resources shall be marked in the register maintained by PSEGS/District at its premises. However a mutually agreed attendance record mechanism for all the onsite manpower shall be devised so that any deviation with respect to attendance can be monitored without any ambiguity and the same shall be used for calculation of applicable penalty.
 - d. SI shall have to submit Quarterly consolidated attendance report (Month wise) for each onsite resources deployed, within one week of Quarter ending.

4.3.2.21. UAT and Go-Live Report

- I. SI will be responsible for successful completion of User Acceptance Testing (UAT) and audit of the system on the completion of the roll out of eDistrict application during forth phase and will submit a Go-Live Report for each phase.
- II. Before the Go-Live of any service SI shall submit a service delivery matrix sheet to PSeGS. The matrix would indicate the status of various components involved in the service delivery like hardware, training, digital signature, application development/ customization etc. And it is only after the successful completion/ provision of these components, any service could be made live.

4.3.2.22. Intellectual Property Rights (IPR)

The IPR of the Pilot e-District application as provided to the System Integrator at the beginning of the project, the modification/ updation/ customization done by system integrator in the same and the final solution deployed by the system integrator, in any case, shall rest with PSeGS. The SI shall at no point of time, be in a position to claim right over any information / solution provided as a part of this bid.

PSeGS in no case shall be held responsible for any IPR violation done by the System Integrator while executing the scope of work of this RFP.

4.3.2.22.1. Sign-off Deliverables / Exit Criteria

- I. Go-Live report for state and district level
- II. UAT Report signed off from PSeGS and SPMU

4.3.3. Network Connectivity

Connectivity infrastructure will connect the field offices (i.e. Department Offices) where applications are processed. The bandwidth to the field offices shall be made available by State/ PSeGS.

For the Punjab State, the System Integrator will undertake the following:

- I. In Punjab SWAN (PAWAN) is already operational across the State with 4 Mbps vertical connectivity up to District and 2Mbps from District to block level. Total 196 PoPs (Point of Presence) are operational across the state. The district & block would be connected to the nearest PAWAN PoPs. The selected Bidder shall ensure the complete local area networking at the field offices.
- II. State shall extend the PAWAN connectivity to the field office level and a link shall terminate at the office level. It shall be the responsibility of the selected Bidder to:
 - a. Connect the office Local Area Network (established by him or already available in any case) with that connectivity link provided in the office.
 - b. Co-ordinate with PAWAN operator & Bandwidth provider to connect & making operational the connectivity in the office.
 - c. Shall properly place the router within the rack and connect to power.
- III. LAN within all District/ Block/ field offices including but not limited to IP addressing scheme, physical cabling, router/switch configuration, V-LAN configuration, load balancing configuration, and fail over mechanism. The selected Bidder should coordinate with the local department offices while designing and installing the LAN.
- IV. All networking equipment required to provide the LAN / WAN connectivity to meet the requirements of the Project is also to be provided by the selected Bidder as part of this RFP.

- V. The LAN within an office shall not only connect the IT infrastructure to be supplied under this bid but also the present infrastructure (like desktops/ printers/ scanners) with the officials involved in the services under e-District project,
- VI. System Integrator shall also provide NMS licenses, using which one should be able to monitor, from a central place, the health of all network devices under the eDistrict network. The NMS shall be compatible with the NMS used under PAWAN project. The details of which are provided under this RFP.

4.3.3.1. Sign-off Deliverables / Exit Criteria

SI shall submit the Local Area Network installation report to the District Nodal officers along with necessary sign offs from the field level offices. The final Network Connectivity report than shall be submitted to PSeGS along-with the individual sign offs from District nodal officers.

A separate report in this regard shall also be submitted for the Data centre.

4.3.4. Data Digitisation & Data Migration

4.3.4.1. Data Digitization

- I. SI shall digitise all historical data lying at various District & sub-district level offices, as per the requirement specified in the RFP. .
- II. SI shall formulate the Data Digitisation Strategy which will also include internal quality assurance mechanism. This will be reviewed and signed-off by PSeGS and SPMU prior to commencement of data digitisation.
- III. SI shall include the learning from pilot project digitization and update the necessary changes in the strategy document for implementation. Any SI who has not been involved in the pilot implementation of the project anywhere in country shall coordinate with pilot states for getting the leanings with the help from SPMU and Nodal Officer.
- IV. SI shall incorporate all comments and suggestions of PSeGS and SPMU in the Data Digitisation Strategy.
- V. SI shall perform pilot data digitisation exercise to validate the conversion programs.
- VI. SI shall ensure complete data cleaning and validation for all data digitised and loaded on to eDistrict Application.
- VII. SI shall validate the data before uploading the same to the production environment.
- VIII. SI shall generate appropriate control reports before and after digitisation to ensure accuracy and completeness of the data.
- IX. SI shall conduct the acceptance testing and verify the completeness and accuracy of the data Digitised to eDistrict Application.
- X. PSeGS and SPMU may, at its will, verify the test results provided by SI.

4.3.4.1.1. Data Digitization Process to be followed:

- I. Scanning of Original register/ file/ document/
- II. Cropping, refinement of scanned image (If applicable)
- III. Printout of register of scanned images
- IV. Entry of record in English thru Bilingual software.
- V. Print out of checklist – 1 for proof reading
- VI. Proof reading & updation of corrections in database.
- VII. Print out of checklist – 2 for final proof reading.
- VIII. Proof reading & updation of corrections in database.
- IX. Final print out for Random checking by the concerned office/ official.
- X. Cropping of page image into Single Strip (For Birth/ Death only).
- XI. Handover of final Hard & Soft copy of backup.

It needs to be ensured by the SI that a robust Quality Check Mechanisms is built-in to ensure 100% accuracy of digitized data. Any error in digitized data can have huge ramifications. For instance, an error in capturing the correct caste name of an applicant can lead to a number of issues for the citizen in getting the community certificate accepted by various Government and private agencies. Thus, there is no room for any error in digitized data and a thorough check should be done to ensure the accuracy. SI needs to prepare Data Quality Metrics as a measurement tool to evaluate data quality.

4.3.4.2. Data Migration

Migrating the data from the other systems/manual operations to the new system will include collection and migration of user data, collection and migration of master data, closing or migration of open transactions, collection and migration of documentary information, and migration of data from the legacy systems.

The SI shall perform the data migration from existing systems to the new system. The Data migration task shall be preceded by an appropriate data migration need assessment including data Quality Assessment.

The Data migration strategy and methodology shall be prepared by SI and approved by PSeGS. Though State is required to provide formal approval for the Data Migration Strategy, it is the ultimate responsibility of SI to ensure that all the data sets which are required for operationalization of the agreed user requirements are migrated.

Any corrections identified by PSeGS or any appointed agency, during Data Quality Assessment and Review, in the data migrated by SI, shall be addressed by SI at no additional cost to State. So far as the legacy data is concerned, it is mostly available as structured data in the IT systems that are currently used by departments/ Suwidha centres for related work. This data is being maintained at various levels of offices/ Suwidha centres.

4.3.4.2.1. Data Migration Requirements

- I. Since there could be structural differences in the data as stored currently from the new system there should be a mapping done between the source and target data models that should be approved by PSeGS.
- II. Carry out the migration of legacy electronic data
- III. Provide checklists from the migrated data to PSeGS for verification, including number of records, validations (where possible), other controls / hash totals. Highlight errors, abnormalities and deviations.
- IV. Incorporate corrections for the errors discovered during verification process, as proposed
- V. Get final sign off from PSeGS for migrated data.
- VI. At the end of migration, all the data for old cases must be available in the new system.

4.3.4.3. Scope of Data Migration and Data digitization

The approximate volume of data to be digitized/ migrated is provided in Section 6 of the RFP. However the actual volume of data could vary on either side (higher or lower) and thus SI shall be paid on actual basis for the same.

4.3.4.4. Recommended Methodology of Data Migration

Data migration methodology will comprise the following steps, explained as below. However this is just a guideline for data migration effort and the SI will be required to devise his own detailed methodology and get it approved by PSeGS.

i. Analysis

Analysis of the legacy data and its creation, conversion, migration and transfer to the proposed new data base schema will start immediately after signing of the contract and shall be completed before the Go-Live of respective service. It will cover the following steps:

- i) Analyse the existing formats of data in lieu of the new proposed system.
- ii) Write a specification to create, transfer and migrate the data set
- iii) Document all exceptions, complex scenarios of the data
- iv) This phase will generate the specification for Data Take-On routines

ii. Transformation

Transformation phase will entail the following steps:

- i) Identify the fields, columns to be added/ deleted from the existing system
- ii) Identify the default values to be populated for all 'not null' columns
- iii) Develop routines to create (Entry if any by data entry operators), migrate, computer records to the new database
- iv) Develop test programs to check the migrated data from old database to the new database
- v) Test the migration programs using the snapshot of the production data
- vi) Tune the migration programs & iterate the Test cycle
- vii) Validate migrated data using the application by running all the test cases
- viii) Test the success of the data take-on by doing system test

iii. Data Take–On

Take–On phase will entail the following steps:

- i) Schedule data transfer of the computerized data that has been newly created by the data entry operators.
- ii) Schedule data transfer of the existing digital data in the proposed new format
- iii) Migrate the data from an old system (legacy) to the envisaged database
- iv) Test on the staging servers after the data take-on with testing routines
- v) Migrate from staging servers to production servers
- vi) Deploy and rollout the system as per the project plan

Additional Guidelines

➤ **Data Migration**

1. SI shall migrate/convert/digitize the data at the implementation sites of State.
2. SI shall formulate the “Data Migration Strategy document” which will also include internal quality assurance mechanism. This will be reviewed and signed–off by PSeGS prior to commencement of data migration.
3. SI shall incorporate all comments and suggestions of State/ PSeGS in the Data Migration Strategy and process documents before obtaining sign–off from PSeGS.
4. SI shall perform mock data migration tests to validate the conversion programs.
5. SI shall ensure complete data cleaning and validation for all data migrated from the legacy systems to the new application.
6. SI shall validate the data before uploading the same to the production environment.
7. SI shall generate appropriate control reports before and after migration to ensure accuracy and completeness of the data.
8. SI shall convey to State in advance all the mandatory data fields required for functioning of the proposed solution and which are not available in the legacy systems and are required to be obtained by State.
9. In the event State is unable to obtain all the mandatory fields as conveyed by SI, SI shall suggest the most suitable workaround to State. SI shall document the suggested workaround and sign-off will be obtained from State for the suggested workaround.
10. SI shall develop data entry programs / applications that may be required for the purpose of data migration in order to capture data available with / obtained by State in non – electronic format.
11. SI shall conduct the acceptance testing and verify the completeness and accuracy of the data migrated from the legacy systems to the proposed solution.
12. State may, at its will, verify the test results provided by SI.

➤ **Data Digitization**

1. Although the Data entry module for the above mentioned records has been developed under the Pilot implementation, still, if there is any change required to be made in the

same or a fresh data entry module is required to prepared, as per the requirement of the State line department, the same needs to be made by the System integrator.

2. The language for data entry shall be the same as that of parent record. However the SI needs to deploy a transliteration tool for conversion of records entered in Punjab to English 7 vice-a-versa.
3. The SI shall be required to maintain a backup of the data digitized. An electronic copy of the data so digitized shall be handed over to PSeGS.
4. SI needs to ensure integrity of the data with the e-District application so that digitized/ migrated data is actively used for service request processing and delivery beside being used for database verification.
5. SI needs to use autocorrecting software and similar logics, so as to facilitate correct data entry.
6. The manner in which records shall be handed over to the SI and taken back shall be finalized in discussion with the concerned department. During the custody of the records, SI shall be completely responsible for the safety and security of the records. And no alteration in the records shall be made by any resource person of the SI. In case, any such act is done appropriate legal action may be initiated against the SI.
7. SI needs to deploy adequate number of data entry operator and IT infrastructure for completing the data entry assigned to them with in timeline.
8. Quality Check
 - The bidder should ensure at-least 98% data accuracy.
 - Random checking will be conducted by the officer/agency appointed by the concerned department.
9. Location of work
 - Concerned office, where the record is lying, or at a central place in the District as provided by the concerned department. Bidder has to arrange all necessary facilities not limited to electricity, power back up, water, cleaner, computers & other hardware at his own.
10. Loss of data
 - Bidder should take good care of all Government records and will be responsible for security of the record from time of receipt to time of delivery.
 - Penalty for per record will be charged against the loss or damage of record.
 - The bidder should not accept illegible record. Non-readable record at the time of returning of the data will be considered as damaged record.

Please note:

- I. Data Digitization here does not simply refer to performing scan / OCR of the records and storing them in the database. It refers to data entry of citizen records/ case files in specified formats for a defined period of time. Along with the entry, in some cases they may be required to attach the scanned copy of original records, so as to facilitate any future validation of data entry.

- II. The sample copy of the records to be digitized is provided with this RFP for the necessary reference of the bidder.
- III. The Data digitized/ migrated should be Unicode compliant.

4.3.4.4.1. Sign off Deliverables / Exit Criteria

- I. Data Digitisation Strategy Document
- II. Data Migration Strategy & Methodology Document.
- III. Approval by PSeGS / SPMU on successful digitisation of data

4.3.5. Site Preparation

- I. The SI is expected to prepare the client sites for setting up the necessary client site infrastructure.
- II. Site preparation at SDC & all required client offices will include:
 - A. Electrical fittings and LAN cabling along with conduit.
 - a. To ensure adequate number of LAN ports so as to ensure flexibility of operations by the officials.
 - b. To setup the LAN in case of a shift of office from one location
 - B. Connecting all desktop / laptops to Internet / LAN Cable, etc.
 - C. Internal cabling
 - D. Power back up for the Network
 - E. Furniture & Fixtures (if required).
- III. SI shall use structures cabling for various networking equipments to be provided & installed at various field offices as well as the Data centre.
- IV. The details of number of offices for site preparation will be provided by the PSeGS.
- V. Maintenance of the computing and connectivity infrastructure for 5 years (4th & 5th year at the discretion of PSeGS) and training support to be imparted to the end user.

4.3.5.1. Sign-off Deliverables / Exit Criteria

- I. List of offices for site preparation.
- II. Site Preparation Completion Report.

4.3.6. Supply / Procurement of IT Infrastructure at SDC

The State has made provision at Mahatma Gandhi State institute (MGSIPA), sector 26, Chandigarh for the Data Centre premises for hosting the IT Infrastructure. The pilot e-district SDC infrastructure is also hosted at the same place.

The Bidders are required to carefully assess the requirements of this RFP and size the infrastructure accordingly. Bidders are free to propose any higher / additional infrastructure that

may be required as per their proposed solution to meet the project requirements, its scope of work and SLAs as listed in this RFP.

- I. Bids / proposals which do not meet the minimum IT infrastructure specifications given in this RFP will be summarily rejected. The minimum technical specifications for the IT Infrastructure are provided in **Section 6: Bill of Material (Infrastructure at SDC) in Volume 2 of the RFP** and note that these are the minimum requirements only.
- II. The Bidder will be responsible for sizing the hardware to support the scalability and performance requirements of the eDistrict application. The Bidder shall ensure that the servers are sized adequately and redundancy is built into the architecture required to meet the service levels mentioned in the RFP. While doing that SI has to take into consideration the existing Pilot e-District infrastructure, details of which are already provided in this RFP. The hardware requirement shall be finalized after proper justification on the complete sizing of the solution including Hardware, Software, Operating System and Servers. The bidder shall provide detail configuration of all the hardware with justification. A certificate in this regard from OEM is required.
- III. None of the IT Infrastructure proposed is declared “End-of-Sale” by the respective OEM in next 2 years as on date of submission of Bid.
- IV. The IT Infrastructure proposed should be purchased within last 2 months from the date of deployment and documentary proof for warranty and proof of purchase should be produced at the time of deployment of infrastructure.
- V. The IT Infrastructure proposed should be compatible with existing infrastructure at SDC (pilot e-District , SSDG, SWAN, State Portal, etc. the details of the present hardware at SDC (under e-District Pilot project) is given below:

Sr. No.	Component	Specification	
1.	RDBMS	MS Sequel	
2.	OS	Windows	
3.	Servers Hardware	Type & Model	Qty.
		Web server – HP Proliant 380	2 Nos
		Application Server – HP Proliant 380	2 Nos
		Database Server – HP Proliant 380	2 Nos
		Management Server – HP Proliant 350	1 Nos
4.	System Software	Database Server	MS SQL (RDBMS)
		Application Server Enterprise	MS Server (Application server bundled with Windows 2008)
		Web Server	MS Server

Sr. No.	Component	Specification
		(IIS Server bundled with Windows 2008)
	Microsoft Windows Server 2008 Ent Edition OLP	Windows
	Microsoft Windows Server 2008 External Connector License OLP	Windows
	Windows Server CAL OLP	Windows
	Management Server Antivirus/ Anti Spam/ Anti Spy Backup Software	Symantec Data protector

- VI. The Bidder should provide requisite licenses for all the system software required for servers including, but not limited to industry standard operating system, enterprise class database software, application server software, web server software, OS hardening, and all other required software with sufficient number of licenses.
- VII. The Bidder will be responsible for providing all the details of the Bill of Material (BoM) and specifications of the IT Infrastructure proposed, licenses of the system software, all other equipment proposed as part of its Technical Proposal. The financial quote submitted by the Bidder should include costs for these.
- VIII. Bidder shall be responsible for site preparation including installation of racks & other hardware, networking etc. for the successful installation & commissioning of the hardware.
- IX. For carrying out the sizing of the SDC infrastructure the SI may take into consideration the following factors:

Sr. No	Parameter	Indicative Load
I.	Number of GSK Users	2112 GSKs are to be opened and shall be provided access to the application.
II.	Number of Suwidha Users	115 Suwidha centres with approx. 6 users per Suwidha Centre
III.	Number of Intranet Users (Departments)	There shall be approx. 8000 users, who shall access the eDistrict application through approx. 2250 desktops. However these numbers could vary on either side during field implementation.
IV.	Average number of service requests per district per year	100000 – 125000 per district per year
V.	Peak load months	3-4
VI.	Average number of scanned	3-5

Sr. No	Parameter	Indicative Load
	supporting documents per service request	(this shall get reduced after deploying document management system)
VII.	Total number of potential users (casual browsers)	Initially 10000 per day. Additional Growth rate : 40% in first year, 25-30% in second year, 10% in subsequent years)
VIII.	Number of Form Down Loads / uploads	2000 per day
IX.	Portal response time	Static pages: 3-5 seconds Dynamic pages: < 7 seconds Business applications: < 10 seconds
X.	No of BI Tool users	Approximate 50 users accessing the tool through approx. 50 devices.

- X. SI shall be required to give a successful load testing report for at-least 1000 concurrent users. However this number shall not be taken as reference by the System Integrator with regard to maximum number of concurrent users. During actual operation the actual number of concurrent users could be higher than this.
- XI. SI shall, every 6 months carry out load testing through tools like Load Runner, Rational Robot, and Performance tools to ensure compliance to the sizing criterion, quoted in the tender.

4.3.7. Hardware Commissioning at Field Offices

4.3.7.1. Design, Supply, Installation, Commissioning, Operations & Maintenance of IT Infrastructure

This shall consist of

- I. Supply / Procurement of IT Infrastructure at Department Offices (District & Sub-district level offices like Tehsils, Blocks, etc.)
- II. Installation and Commissioning of the IT Infrastructure.

4.3.7.2. Supply / Procurement of IT Infrastructure at Department Offices (DHQ, Tehsil and Block)

The Bidders are required to carefully assess the requirements of this RFP and propose the IT Infrastructure required at Department Offices. The following hardware and peripherals need to be installed in different districts, blocks and tehsils offices spread across the State processing the service requests submitted by the citizens:

- I. Desktop Computer
- II. Laptop
- III. Digital Camera with tripod stand

- IV. Scanners
- V. Network Laser Printers
- VI. UPS (600VA, 1 KVA, 3 KVA)
- VII. Rack for offices
- VIII. 24 Port Switch
- IX. 16 Port Switch
- X. 8 Port Switch
- XI. Router
- XII. Digital Signature pads
- XIII. Biometric thumb reader
- XIV. Digital Signature
- XV. Table & Chair

Bidders are free to propose any higher / additional infrastructure that may be required as per their proposed solution to meet the project requirements, its scope of work and SLAs as listed in this RFP.

- I. Bids / proposals which do not meet the minimum IT infrastructure specifications given in this RFP will be summarily rejected. The minimum technical specifications for the IT Infrastructure are provided in **Section 6: Bill of Material (Infrastructure at Field Offices) in Volume 2 of the RFP** and note that these are the minimum requirements only.
- II. None of the IT Infrastructure proposed is declared “End-of-Sale” by the respective OEM in next 2 years as on date of submission of Bid.
- III. The IT Infrastructure proposed should be purchased within last 2 months from the date of deployment and documentary proof for warranty and proof of purchase should be produced at the time of deployment of infrastructure.
- IV. The IT Infrastructure proposed should be compatible with infrastructure at SDC, SSDG, SWAN, State Portal, etc.
- V. The Bidder will be responsible for providing all the details of the Bill of Material (BoM) and specifications of the IT Infrastructure proposed, licenses of the system software, all other equipment proposed as part of its Technical Proposal. The financial quote submitted by the Bidder should include costs for these.
- VI. Bidder shall be responsible for procurement as well as renewal of digital signatures. For this purpose PSeGS has tied up with NIC Punjab. System Integrator shall also be required to liaison with NIC for purchase of digital signatures. In case of transfer of any official during the implementation as well as the O & M period it shall be the responsibility of the SI to supply the Digital signature to the new official.
- VII. Digital Signature shall be Type-III as per information Technology Act-2000 and from the Government of India approved CCAs only.
- VIII. The SI shall be required to maintain a suitable inventory, at district level, of the following items so as to meet the SLAs provisioned in the bid.

- I. Switch
- II. Router
- III. UPS

The SI shall submit a monthly report regarding inventory status to PSeGS.

4.3.7.2.1. Installation and Commissioning of IT Infrastructure

The selected Bidder is responsible for installation and configuration of the entire infrastructure set-up, including but not limited to the following:

- I. All IT Infrastructure including operating systems and any other system software required for making the infrastructure operational and tuned for satisfactory performance.
- II. The IT Infrastructure will be installed and configured in accordance with the IT Policies of the Government of India/ State of Punjab.

The selected Bidder will ensure that the reports for monitoring of SLAs such as system uptime, performance, etc. are generated automatically from the system and the applicable penalties are calculated as indicated in the RFP.

4.3.8. Licenses

- I. The system software licenses mentioned in the Bill of Materials/ proposed by SI as per solution shall be genuine, perpetual, full use and should provide all patches, fixes, security patches and updates directly from the OEM. All the licenses and support (updates, patches, bug fixes, etc.) shall be in the name of Punjab State e-Governance Society.
- II. The SI shall provide PSeGS with a full use database license. All the licenses and support (updates, patches, bug fixes, etc.) shall be in the name of Punjab State e-Governance Society. SI shall provide a comprehensive warranty that covers all components after the issuance of the final acceptance by Punjab State e-Governance Society. The warranty should cover all materials, licenses, services, and support for both hardware and software. SI shall administer warranties with serial number and warranty period. SI shall transfer all the warranties to the Punjab State e-Governance Society at no additional charge at the time of termination of the project. All warranty documentation (no expiry) will be delivered to Department.
- III. SI shall review the licenses requirements with the SPMU and PSeGS. The SPMU with the help of PSeGS shall clarify on the licenses requirements to be brought by the SI and availability at SDC.

4.3.9. Capacity Building / Training

At the minimum, Capacity building will include the following:

- I. Imparting training in Information Technology (IT), Business Process Reengineering (BPR) and Change Management.

- A. Such trainings and skills will be imparted to all levels of government employees involved in the processes pertaining to the selected services.
- B. These would range from senior officers such as the State Department Secretaries up to the officials working in the districts and sub districts such as Deputy Commissioner/ Tehsildar /Patwaries / etc.
- II. Prepare and organize training programs to facilitate the user departments in the efficient usage of the new system. Training will be provided to department's employees whose Information & services will be provided through eDistrict Application.
- III. SI shall include the learning from pilot project and update the necessary changes in the training. In case SI has not been involved in Pilot implementation, he shall coordinate with pilot SI for getting the learnings with the help from SPMU and PSeGS.
- IV. Training shall encompass the knowledge of basic functionalities of eDistrict Application, Guidelines and other backend processes.
- V. Training shall also be provided for teaching the basic trouble shooting activities in case of problems.
- VI. Trainings shall be provided to all the new employees as and when joining the department.
- VII. The SI would be required to prepare a detailed training plan covering at least the trainings to be conducted, targeted audience, location, dates for training, duration and training content. The training plan would be submitted to the Department as per timelines mentioned in this RFP for feedback and approval from the Department.
- VIII. SI would also be required to develop user manuals and computer based tool kits, PPTs and videos to promote self-learning and assist training participants in undergoing the training.
- IX. SI should also ensure that there is an ability to capture feedback of training programs conducted to gauge the effectiveness of instruction and make improvements

4.3.9.1. Training and Capacity Building Plan

Based on the roles and responsibilities of the government officials at various levels, the training plan is proposed to capture the need and requirement of skill and capacity enhancement of the government officials. Also, at the same time based on the functional change in the working of government officials, a need assessment has been taken up to identify the training need requirement at the various levels.

4.3.9.2. Training Requirements

The System Integrator shall be required to provide trainings to various stakeholders of the project comprising officials of DoGR, State line departments, Deputy Commissioners, Additional Deputy

Commissioners, Sub-Divisional Officers and various other District & sub-district level officers concerned with the services covered under the project. SI shall also undertake change management interventions as necessary to achieve project objectives. In addition to this SI shall be carrying out at-least following activities:

- i. Shall train the officials to enable them to effectively operate the system
- ii. Training shall also be provided for teaching the basic trouble shooting activities (hardware and software related) in case of problems.
- iii. For all the listed training programs, the SI has to provide necessary course material, user manuals, system admin, manuals etc. to the trainees.
- iv. The course material shall be in both English and Punjabi.
- v. The course material shall be first approved by PSeGS and then only shall be handed over to the trainees.
- vi. SI has to establish its own infrastructure (including Physical location, Projector, Computers for user training, Stationary, Printer, Scanner, Consumable, UPS etc.) at-least at District & Tehsil levels to conduct the trainings.
- vii. The trainers shall be proficient in Punjabi language so as to impart training to the officials.
- viii. The SI should consider all the costs related to training like manuals, traveling cost of the trainer etc. while proposing the manpower cost for training.
- ix. At the end of the training, the SI shall take a feedback from all the officials to whom the training has been provided, shall conduct a written/ online test for the training so imparted to the functionaries and share the results with the PSeGS/ DeGS. All the passing participants shall be provided with a participation certification and candidates not passing the test shall be required to provide training again with no additional cost to PSeGS.
- x. If required SI shall be required to provide training to the identified users of the Service Centre Agencies (SCAs) of GSK (CSC) project in the State.
- xi. The SI shall maintain daily based attendance registers for the trainees and shall submit a copy to the district administration and PSeGS at the completion of each batch.
- xii. SI shall provide training as per its proposed training plan and any deviation shall be reported to and approved by PSeGS/DeGS.
- xiii. The indicative number of officials to whom the training is to be provided, is given in the subsequent Section, however the payment shall be made only as per actual.
- xiv. Training will be provided by the SI to the Department officials for a batch of minimum 10 and maximum 25 people to be identified by the SI in consultation with the District Nodal Officer.
- xv. A detailed training plan is to be provided by SI. The training plan should carry necessary details like detailed training schedule, including the dates, areas to be covered, time and the training literature (to be supplied to the Department) at various stages of the cycle and feedback for effectiveness etc. the plan shall be reviewed by PSeGS/ DeGS and after incorporating the comments/ suggestions, SI shall be required to implement the same.

xvi. Training shall be provided to all the officials associated in the delivery of services covered under the project.

4.3.9.3. Proposed Training Band

Based on the organizational hierarchy of the district administration and the envisaged roles and responsibilities, it is proposed to create 2 bands – I & II for training purpose only. This will enable to ease the training of government staff and also at the same time will integrate the understanding of various actors for consolidated service delivery. The following table is proposed to be followed for training purposes –

Band	Officials	Group Strength (approx.)
Group I	DC, ADC, AC (G), SDM, CAO,CMO, DFSC, , DSSO, EOMC, ADR, , DFSO, District ,Revenue Officer, , Executive Magistrate, PIO, PM Suwidha, Presiding Revenue Officer, Tehsildar, SMO - Civil Hospital, Naib Tehsildar, Public Grievance Officer, etc.	700
Group II	AFSO, BAO, CDPO, ADO – CAO, APIO, , Clerk - HRC/DC, , Computer Clerk - DSSO Office, Dealing Clerk - DRA® Branch, Food Inspectors, PLA, PLC, , Reader to DC/ADC/SDM/ Tehsildar/ Naib Tehsildar , Sadar Kanungo, SCA Assistance, SCA Clerk, SDA -SDC Agency, , Superintendent - District Hospital, Supt DC, Supt. EOMC, dealing hand (Birth/ Death), EOMC ADO – BAO, Patwaris, , Dealing clerk – CMO office, SMOs – PHCs, Dealing ADO – CAO office, Dealing clerk – Tehsildar office/ Naib Tehsildar office, etc.	8000
Total Group Strength		8700

4.3.9.4. Training Modules

Understanding the change in the revised process and workflow of selected service which will emanate because of implementation of e-district application, training and capacity building of the government official cutting across departmental lines becomes quintessential. During the 'As-Is' study phase, an in-depth analysis of need and requirement of training to meet the service requirement as proposed in the e-district application was undertaken. The following training modules are proposed to be undertaken across the departmental hierarchy –

1. e-District Orientation
2. Basic Computer Training
3. Specialized Computer Training
4. Process Training
5. Activity Training
6. e-District Application Training

The proposed training module is expected to help the government functionary to undertake their revised roles and responsibilities with ease and without any difficulty and apprehension. The training modules will impart the required skill set and capacity for performance of defined roles and responsibilities. Further, reinforcement training will be provided as per the requirement as assessed after the training program is over. The following training modules are proposed to be undertaken across the departmental hierarchy –

4.3.9.4.1. e-District Orientation

The e-District Orientation program is envisaged to be conducted at district headquarter and tehsil headquarter. The orientation program is expected to generate awareness about the e-district project across all levels of the departmental hierarchy. The program outlines to state and communicate the objective of the project to all the government stakeholders. All efforts will be directed toward getting the buy in for the project cutting across the departmental lines.

An introduction to incorporation of technology as an enabler and supportive in discharging roles and responsibilities of government official will be integrated in e-District orientation program.

The proposed e-District Orientation program will cover the following elements –

Training Module	Content description
e-District Orientation	<ul style="list-style-type: none"> • Overview of e-Governance • Overview of e-District project • Services Covered under e-District Project • Roles & Responsibilities of officials • Typical workflow envisaged under the selected services • Expectation from stakeholders <ul style="list-style-type: none"> ○ Citizens ○ Government officials ○ Government (district administration and State level administration) • Benefits emanating from e-District application to government officials

4.3.9.4.2. Basic Computer Training

Basic Computer Training is envisaged to acquaint and aware the government officials with basic function and nature of computers and its application. Concerted effort will be directed toward providing exposure of computers especially to ground level functionary. This training is proposed to be undertaken at District/ Tehsil/ Block level. .

Training Module	Content description
Basic computer training	<ul style="list-style-type: none"> • Introduction to Hardware & Software • Basic computer Tools & Operations • File management etc.

Training Module	Content description
	<ul style="list-style-type: none"> • Overview of Computer & its component • Computer Drives <ul style="list-style-type: none"> ○ D or E drive - cd rom drive for compact discs ○ C - hard drive • Input Devices <ul style="list-style-type: none"> ○ Mouse ○ Keyboard ○ Scanner ○ Microphone • Output Devices <ul style="list-style-type: none"> ○ Printer ○ Speakers ○ Monitor • Components Necessary for Personal Use <ul style="list-style-type: none"> ○ CPU ○ Keyboard, mouse ○ Monitor • Additional Devices <ul style="list-style-type: none"> ○ Router ○ Switches

4.3.9.4.3. Process Training

Process Training is proposed for Group I officials. This training is proposed to bring in detailed understanding of revised process and procedure for the selected services covered under the project. The Process training will detail out the step-by-step of the service process to concerned actors so as to acquaint them and help them understand the revised process. The training will detail out the roles and responsibilities of the concerned actors in the revised process.

Training Module	Content description
Process Training	<ul style="list-style-type: none"> • Overview of existing running processes to be given to the concerned departmental officials. • Overview of revised process after (Business Process Reengineering) for the selected services covered under e-District • Detailed Description on proposed To- BE processes to be given to the concerned departmental officials • Identification of roles and responsibilities of actors • Introduction of service level

Training Module	Content description
	<ul style="list-style-type: none"> • Introduction of auto escalation • Introduction of monitoring and control of action by actors by top management • Introduction of messaging component • Identification of online and offline activities associated with the process

4.3.9.4.4. Activity Training

Activity Training is proposed for Group II officials. Activity training is envisaged to prepare the ground functionary based on the expected roles and activities to be performed in fulfilling the defined roles and duties. Activity training will first enlist down all the roles entrusted and then break the roles in terms of activity to be performed to meet the role. Once established the activity will be explained in terms of revised process of service and integrate the same with the computer use. Also, at the same time in-depth clarity will be provided to the trainee about the other associated factors like service levels, auto escalation and monitoring & control aspect of the e-District Application.

Training Module	Content description
Activity Training	<ul style="list-style-type: none"> • Establishing revised roles and responsibilities of concerned actors for all departments • Developing action and activities list interactively • Understanding the revised method of performing action and activity • Identification of deletion of action and activity • Modification in action and activity • Addition in action and activity • Identification of action and activity associated with use of computer • Soft skills & e-mail etiquettes

4.3.9.4.5. Specialized Computer Training

Specialized Computer Training is proposed to provide in-depth and detailed training This unique training program would be designed and developed to help government functionary understand how and effective use of computer will reduce their work tardiness in the shortest time possible using strategies and techniques to have maximum impact. This will be done through a complete step-by-step working and by definitive handholding for use the computer more effectively.

Training Module	Content description
Specialized Computer training	<ul style="list-style-type: none"> • Computer Basics • Working with Windows • Working with Word application

Training Module	Content description
	<ul style="list-style-type: none"> • Working with the Web (e-mail application) • Working with Databases • Detail training on the followings - • Desktop Operating Systems <ul style="list-style-type: none"> ○ Microsoft Windows XP,(Professional, Small Office Networking, and Home editions) • Suites <ul style="list-style-type: none"> ○ Open Office (to be supplied under this bid) • Internet <ul style="list-style-type: none"> ○ Microsoft Internet Explorer 8,7,6 • Productivity <ul style="list-style-type: none"> ○ Organizer ○ Typing

4.3.9.4.6. eDistrict Application Training

The e-District application Training is envisaged training compulsory for government official cutting across departmental hierarchy. The training is proposed to acquaint and train the work force with the various modules of e-district application by the use of computer. The training will be initiated through class room training through screen shots of the software for concerned actors and then followed by detailed training over the e-district application over computer. The e-District application training is proposed to be undertaken at the District Headquarters, Tehsil Headquarters and Block Headquarters.

Training Module	Content description
e-District Application Training	<ul style="list-style-type: none"> • Specific modules of e-District application through screen shots further on e-district application • Commands – key board and mouse roll over • Training to be given to related process officials on “how to use e-District Application. • Training to be given to various levels of officials respective to their module in e-District Application. • Training to be given to concerned process officials on use, working, authenticity and implementation of <ul style="list-style-type: none"> ○ Digital Signature ○ Biometric devices ○ User name and password

4.3.9.5. Training Plan

A detailed training program has been developed in consultation with the district officials for the proposed module of the training. The summary table of the proposed plan is being provided below followed by a detail training plan –

Sr.	Training Module	Group I	Group II	Duration (in Hrs.)
1.	E-District Orientation	Y	Y	2 hours
2.	Basic Computing Training	Y	Y	12 hours
3.	Process Training	Y	N	4 hours
4.	Activity Training	N	Y	4 hours
5.	Specialized Computer Training	Y	Y	12 hours
6.	e-District Application Training*	Y	Y	18 hours

*The Application training here also includes training on the modified eDistrict Application

The training requirements mentioned above are at a role level for the specific changes that have been recommended. Further to this, during implementation, the SI needs to chart a detailed plan of the activities given below,

- Planning the Training Requirements and activities
 - Brainstorm training activities
 - Finalize preferred media and channels for training
 - Select priority training activities
- Define training curriculum and work plan
 - Define in detail, format for training deliverables
 - Develop local training development work plan
 - Develop contents for the training course
 - Tag training activities to systems rollout plan
- Training delivery Scheduling
 - Assign staff to training courses
 - Schedule training courses
 - Confirm names and dates for courses
 - Issue invitations and confirmations
 - Allocate responsibilities
- Set up training facilities and infrastructure
 - Define technical (web) infrastructure / equipment required and source
 - Finalize training venues
 - Training infrastructure set up
 - Finalize Training Plan
- Training Content Development

- Develop project training material
- Develop change management training material
- Determine End User Support Strategy
 - Define support strategy for project Sign-Off and steady state
 - Define roles and responsibilities and resources for end user support
 - Define skills and training required for support
 - Finalize support strategy with IT and project management
 - Identify individuals involved in end user support
 - Develop support team training strategy

4.3.9.5.1. Post Implementation Training Workshop

Post implementation, the SI should conduct at least 1 workshop every quarter to train the Departmental users.

4.3.9.5.2. Sign off Deliverables / Exit Criteria

- I. Capacity Building Plan
- II. Change Management Plan
- III. Training Plan
- IV. Completion of training and change management activities

4.3.10. Manpower requirements

The project would require provisioning of dedicated manpower at each district to provide support during the roll out process. The detail of the manpower needed, is to be provided as per the Performa given below:

Sr.	Name of Resource	District for which proposed			Qualification (Highest)	No. of Years of Experience	No. of Years with responding firm	Certification	Knowledge of Local Language
		Choice 1	Choice 2	Choice 3					
1									

SI will have to provide resources for all the districts in the State of Punjab

- I. The SI would be required to position resources to provide technical support at each of the districts during the roll out period. This would be essential to ensure sufficient handholding is provided to department personnel in the district level offices to manage the system after the end of SI's Contract Period.
- II. The Technical support resources would be required to work closely with the District Project Coordinator and SPMU in ensuring adherence to the project timelines.
- III. The SI should ensure that the roster schedule of all deployed manpower for each day at the required locations has been communicated in advance to PSeGS/ DeGS. No change to the deployed staff shall be done by the SI without written approval from the PSeGS/DeGS
- IV. Adherence to all laws pertaining to personnel, labour laws, etc. for any manpower deployed by the SI on this Project shall be the responsibility of the SI
- V. The SI would issue Identity cards to each of the staff members deployed at the districts.
- VI. The SI will maintain adequate leave reserve for the staff, so that the work in the respective districts remains unaffected in all cases.
- VII. The SI should make sure that the technical support resources to be positioned in all the Districts will have to be approved by PSeGS and is capable of handling the complexities associated with rolling out the application in the State of Punjab, for instance, should be conversant in Punjabi

4.3.11. Business Data Protection & Continuity Planning

The data generated by the eDistrict application is very critical. As the project envisages almost complete computerization of services, there shall be no paper records of the service availed by the citizen. It therefore becomes pertinent that State has a backup of the entire eDistrict data including but not limited to citizen details, supporting documents, output certificates generated by the application etc. for this purpose State has planned a near backup site where the SI needs to backup the entire eDistrict application data. For this purpose:

- I. Near backup location shall be finalized and provided by PSeGS.
- II. The connectivity between the data centre and the backup site shall be provided by PSeGS.
- III. SI needs to connect the eDistrict application hosted at DC & backup site infrastructure, in an asynchronous mode and ensure data backup in an incremental manner, which means as soon as a transaction is successfully registered at data centre, the same (including all data and document) shall be replicated to the backup site.
- IV. SI needs to carry out the sizing for the IT infrastructure (including 5 kva UPS (es)) to be placed at backup site.
- V. SI also needs to ensure consistency of the data being replicated at the backup site. PSeGS may ask testing of the same any time.

In addition to that SI also needs to carry out the following activities:

- I. Designing and implementing adequate data backup and restoration procedures for the e-District application data (including but not limited to the database, attachments and all other data elements created in and generated by the system and users).
- II. Ensuring that there is no single point of failure (At the database, application & components provided at Data centre) and adequate level of redundancy is built in to meet the uptime and other requirements of this RFP. Preferably, all the redundancy will be in auto fail over mode so that if primary component fails, secondary component automatically takes over.
- III. Any storage space / media required to maintain backups and other requirements of the RFP should be provisioned for by the selected Bidder in his Bid.
- IV. When the Far DR site is finalized and operational, SI shall also be required to do necessary integration of eDistrict application with DR server (s).
- V. SI needs to provide a new backup solution catering to the requirements specified in the RFP and also subjected to the licensing conditions mentioned in the RFP.

4.3.12. Others

4.3.12.1. Information Security Management

Security of Application and the data contained therein is paramount for the success of this Project. Hence, the selected Bidder should take adequate security measures to ensure confidentiality, integrity and availability of the information.

Security Requirements	
Overall Solution	
I.	The proposed solution should include design and implementation of a comprehensive IS security policy in line with ISO 27001 standards to comply with the security requirements mentioned in this section. All the necessary procedures / infrastructure / technology required to ensure compliance with IS security policy should be established by the selected Bidder and should be approved by the PSeGS before they are implemented. The IS Policy shall include all aspects such as physical and environmental security, human resources security, backup and recovery, access control, incident management, business continuity management etc.
II.	The designed IS policy is not in conflict with the security policy of the State Data Centre where the infrastructure would be hosted.
III.	The proposed solution should ensure proper logical access security of all the information Assets
IV.	The proposed solution should be able to classify information assets according to criticality of the information asset.
V.	The proposed solution should provide security including identification, authentication, authorization, access control, administration and audit and support for industry standard protocols

Security Requirements	
VI.	<p>The proposed solution should have a security architecture which adheres to the security standards and guidelines such as</p> <ul style="list-style-type: none"> ➤ ISO 27001 ➤ Information security standards framework and guidelines standards under eGovernance standards (http://egovstandards.gov.in) ➤ Information security guidelines as published by Data Security Council of India (DSCI) ➤ Guidelines for Web Server Security, Security IIS 6.00 Web-Server, Auditing and Logging as recommended by CERT-In (www.cert-in.org.in) ➤ System shall comply with IT (Amendment) Act 2008.
VII.	<p>The proposed solution should support the below Integration security standards:</p> <ul style="list-style-type: none"> ➤ Authentication ➤ Authorization ➤ Encryption ➤ Secure Conversation ➤ Non-repudiation ➤ XML Firewalls ➤ Security standards support ➤ WS-Security 1.0 ➤ WS-Trust 1.2 ➤ WS-Secure Conversations 1.2 ➤ WS-Basic Security Profile
VIII.	<p>The proposed solution should be a multi-layered detailed security system covering the overall solution needs having the following features:</p> <ul style="list-style-type: none"> ➤ Layers of firewall ➤ Network IPS ➤ Enterprise-wide Antivirus solution ➤ Information and incident management solution for complete PSeGS landscape ➤ Two factor authentication for all administrators i.e. system administrators, network administrators, database administrators. ➤ Audit Log Analysis ➤ Selected Bidder must ensure that the security solution provided must integrate with the overall system architecture proposed
IX.	<p>The proposed solution should be monitored by periodic information security audits / assessments performed by or on behalf of the PSeGS. The scope of these audits / assessments may include, but are not limited to, a review of: access and authorization procedures, physical security controls, backup and recovery procedures, and program change controls.</p> <p>To the extent that the PSeGS deems it necessary to carry out a program of inspection and audit / assessment to safeguard against threats and hazards to the confidentiality, integrity, and availability of data, the Selected Bidder shall provide the PSeGS's representatives access to its facilities, installations, technical resources, operations, documentation, records, databases and personnel. The Selected Bidder must provide</p>

Security Requirements	
	PSeGS access to various monitoring and performance measurement systems (both manual and automated). PSeGS has the right to get the monitoring and performance measurement systems (both manual and automated) audited / assessed without prior approval / notice to the Selected Bidder
X.	The proposed solution should facilitate system audit for all the information assets to establish detective controls. The selected Bidder is required to facilitate this by producing and maintaining system audit logs for a period agreed to with PSeGS.
XI.	The proposed solution should ensure that data, especially those pertaining to registration process, transaction process as well as the data that is stored at various points is appropriately secured as per minimum standard 128 Bit AES/3DES encryption.
XII.	The proposed solution should provide database security mechanism at core level of the database, so that the options and additions to the database confirm the security policy of the PSeGS without changing the application code.
XIII.	The proposed solution should support native optional database level encryption on the table columns, table spaces or backups.
XIV.	The database of the proposed solution should provide option for secured data storage for historic data changes for compliance and tracking the changes.
XV.	The proposed solution should be able to ensure the integrity of the system from accidental or malicious damage to data
XVI.	The proposed solution should be able to check the authenticity of the data entering the system
XVII.	The proposed solution should be able to generate a report on all "Authorization Failure" messages per user ID
XVIII.	The proposed solution should be able to monitor the IP address of the system from where a request is received.
XIX.	The proposed solution should be able to differentiate between the systems of the PSeGS network and other external systems
XX.	Retention periods, archival policies and read-only restrictions must be strictly enforceable on all logs maintained in the system
XXI.	The proposed solution should provide ability to monitor, proactively identify and shutdown the following types of incidents through different modes of communication (email, SMS, phone call, dashboard etc.): <ul style="list-style-type: none"> ➤ Pharming ➤ Trojan Domains (old/new) similar to "PSeGS/e-District Punjab etc."
XXII.	The proposed solution should be able to monitor security and intrusions into the system and take necessary preventive and corrective actions.
XXIII.	The proposed solution should have the option to be configured to generate audit-trails in and detailed auditing reports
XXIV.	The proposed solution must provide ACL objects and a security model that can be configured for enforcement of user rights
XXV.	The proposed solution should be designed to provide for a well-designed security of physical and digital assets, data and network security, backup and recovery and disaster recovery system.

Security Requirements	
XXVI.	The proposed solution should have tamper proof data storage to prevent unauthorised data tampering
XXVII.	The proposed solution should have a Business Continuity Plan and a Disaster Recovery Plan prepared and implemented by the selected Bidder before commencement of the operations. Robust backup procedures to be established for the same.
XXVIII.	Password Requirement
XXIX.	The proposed solution should allow the PSeGS to define password policies. The minimum password policies to be defined are: <ul style="list-style-type: none"> ➤ Minimum/ Maximum password length ➤ Alpha numeric combination of password ➤ Compulsory use of special characters ➤ Minimum password age ➤ Password expiry period ➤ Repeat passwords etc.
XXX.	The proposed solution should be able to automatically check the passwords with the password policy, which can be customized by the PSeGS.
XXXI.	The proposed solution should enforce changing of the default password set by the system (at the time of creation of user ID) when the user first logs on to the system. The proposed solution should enforce all password policies as defined at the time of first change and thereafter.
XXXII.	The proposed solution should store User ID's and passwords in an encrypted format. Passwords must be encrypted using MD5 hash algorithm or equivalent(selected Bidder must provide details)
XXXIII.	The proposed solution should be capable of encrypting the password / other sensitive data during data transmission
XXXIV.	The proposed solution should ensure that the user web access shall be through SSL (https) only for all level of communication for providing higher level of security.

4.3.13. Project Management

4.3.13.1. Project Planning and Management

e-District Mission Mode Project is a geographically spread initiative involving multiple stakeholders. Successful implementation and national roll out of the project ultimately depends on all its stakeholders, the role of SI is very critical. Hence SI is required to design and implement a comprehensive and effective project planning and management methodology together with efficient and reliable tools.

Project planning exercise shall essentially commence with the start of the project, however, project management exercise shall commence at the start of the project and shall continue till the O&M Phase of the project.

To have an effective project management system in place, it is necessary for the SI to use a Project Management Information System (PMIS) (to be provided by NPMU for e-District) at the State level to monitor the Project Progress. The SI shall address at the minimum the following using PMIS:

- I. Create an organized set of activities for the project.
- II. Coordinate and collaborate with various stakeholders including the Departments concerned.
- III. PSeGS, State DoGR, NIC, SPMU, NPMU, DeitY, Gol.
- IV. Establish and measure resource assignments and responsibilities.
- V. Construct a project plan schedule including milestones.
- VI. Measure project deadlines, budget figures, and performance objectives.
- VII. Communicate the project plan to stakeholders with meaningful reports.
- VIII. Provide facility for detecting problems and inconsistencies in the plan

During the project implementation the SI shall report to the PSeGS /SPMU, on following items:

- I. Results accomplished during the period;
- II. Cumulative deviations to date from schedule of progress on milestones as specified in this RFP read with the agreed and finalized Project Plan;
- III. Corrective actions to be taken to return to planned schedule of progress;
- IV. Proposed revision to planned schedule provided such revision is necessitated by reasons beyond the control of the SI;
- V. Other issues and outstanding problems, and actions proposed to be taken;
- VI. Interventions which the SI expects to be made by the PSeGS and / or actions to be taken by the PSeGS before the next reporting period. Progress reports would be prepared by SI on a fortnightly basis. These reports shall be shared with PSeGS & SPMU..
- VII. Project quality Assurance
- VIII. Change Control mechanism
- IX. Project Management activities
- X. Issue Management to help identify and track the issues that need attention and resolution from the State.
- XI. Scope Management to manage the scope and changes through a formal management and approval process.
- XII. Risk Management to identify and manage the risks that can hinder the project progress.

SI will closely work with SPMU and send the reports to the SPMU as well. SPMU will assist PSeGS in acceptance of the report/ document and suggest the action plan to the PSeGS. The Project plan prepared by the SI at the initial stage of the project shall be reviewed by the by the Apex / Empowered Committee on the advice of the State e-Mission Team and SPMU.

The SI shall update and maintain the Project Plan throughout the duration of the engagement. All changes are to be reviewed and approved by the PSeGS or appointed representatives.

4.3.13.2. Sign off Deliverable/ Exit Criteria

- I. PMIS data update & functioning.
- II. Periodic Reports on on-going basis

4.4. Scope of Services - Operation and Maintenance Phase

The selected Bidder is responsible for the day to day maintenance of the system for the entire period of Contract. For the IT Infrastructure procured as part of this RFP, the selected Bidder will be responsible for smooth Operations and Maintenance Services for the period covering onsite support by providing 3 years of comprehensive warranty for all items from the date of GO-LIVE, covering the following:

- I. Onsite Warranty support including repair and replacement
- II. Annual Technical Support (ATS) for all the licensed software
- III. Providing Help desk support with Escalation matrix for registration of complaints related to the IT Infrastructure procured through this RFP at the State designated premises.

If required by PSeGS, the System Integrator shall be required to provide Operation & Maintenance support for 4th & 5th year also. During this period SI shall provide complete AMC (including repair and replacement) for all hardware & software items provided under this bid and also provide helpdesk support for registration of complaints related to IT infrastructure procured through this RFP.

4.4.1. Overview of Post Implementation Services

An indicative list of activities and nature of support to be provided is mentioned below:

- I. System Administration and Trouble Shooting
 - A. Overall monitoring and management of all IT and Non-IT infrastructure deployed for the Project including Server Infrastructure at SDC (including Pilot infrastructure), Departmental locations, networking equipment's & connectivity, system software, application, database, and all other services associated with these facilities to ensure service levels, performance and availability requirements as prescribed in the RFP are met.
 - B. Repair or replace infrastructure deployed for this Project, either directly or through a third party warranty provider depending on the case.
 - (a) SI shall be providing onsite support for various IT infrastructure items deployed by him under the project. In case a component needs to be repaired offsite, a similar component should be provided in its place of the faulty equipment immediately and be kept there till the faulty equipment is repaired and is placed back for use.
 - C. Replace component due to technical, functional, manufacturing or any other problem with a component of the same make and configuration. In case the component of same make and configuration is not available, the replacement shall conform to open standards and shall be of a higher configuration and shall be approved by the PSeGS/ Department
 - D. Perform system administration tasks such as managing the user access, creating and managing users, taking backups etc.

- E. Performance tuning of the system to ensure adherence to SLAs and performance requirements as indicated in the RFP.
- II. Network Administration and Trouble Shooting
 - A. Coordinate with the network service providers to maintain smooth network operations and ensure uptime and performance requirements of the IT infrastructure as indicated in the RFP are met. The selected Bidder will be totally responsible for all networking equipment's installed by him.
- III. Database Administration and Trouble Shooting
 - A. Undertake end-to-end management of database on an on-going basis to facilitate smooth functioning and optimum utilization including regular database backup and periodical testing of backup data, conducting configuration review to tune database, maintaining the necessary documentation and managing schemes to database schema, disk space, user roles, and storage.
- IV. Overall
 - A. Undertake preventive maintenance (any maintenance activity that is required before the occurrence of an incident with an attempt to prevent any incidents) and carry out the necessary repairs and replacement of parts wherever needed to keep the performance levels of the hardware and equipment in tune with the requirements of the SLA. Such preventive maintenance shall not be attended during working hours of the State Departments, unless inevitable and approved by the PSeGS.
 - B. Undertake reactive maintenance (any corrective action, maintenance activity that is required post the occurrence of an incident) that is intended to troubleshoot the system with sufficient teams
 - C. Escalate and co-ordinate with its OEMs for problem resolution wherever required. Should provide unlimited email and telephonic support for the contract period without any capping on no. of incidents or no. of hours of support. Should provide the flexibility to the departmental nodal officer to define the severity of the support incident based upon department's assessment of the criticality of the incident.
 - D. The selected Bidder will be required to comply with various policies relating to monitoring and management of infrastructure such as IS Policy, backup and archival policy, system software update policy etc. of the Punjab State.

4.4.2. Warranty Support

As part of the warranty services SI shall provide:

- I. SI shall provide a comprehensive warranty and on-site free service warranty for 3 years from the date of Go Live for all equipment. SI shall obtain the three year product warranty and three year onsite free service warranty from OEM on all licensed

- software, computer hardware and peripherals, networking equipment and other equipment for providing warranty support to PSeGS.
- II. SI shall provide the comprehensive manufacturer's warranty and support in respect of proper design, quality and workmanship of all hardware, equipment, accessories etc. covered by the RFP.
 - III. SI must warrant all hardware, equipment, accessories, spare parts, software etc. procured and implemented as per this RFP against any manufacturing defects during the warranty period.
 - IV. SI shall provide the performance warranty in respect of performance of the installed hardware and software to meet the performance requirements and service levels in the RFP.
 - V. SI is responsible for sizing and procuring the necessary hardware and software licenses as per the performance requirements provided in the RFP. During the warranty period SI shall replace or augment or procure higher-level new equipment or additional licenses at no additional cost to the PSeGS in case the procured hardware or software is not adequate to meet the service levels.
 - VI. **Mean Time Between Failures (MTBF):** If during contract period, any equipment has a hardware failure on four or more occasions in a period of less than three months, it shall be replaced by equivalent or higher-level new equipment by the SI at no cost to PSeGS.
 - VII. However, if the new equipment supplied is priced lower than the price at which the original support services for all system software, DBMS (Database Management System), EMS (Enterprise Management System), other products deployed as part of this project will require proper arrangements of SI with OEM.
 - VIII. During the warranty period SI shall maintain the systems and repair / replace at the installed site, at no charge to PSeGS, all defective components that are brought to the SI's notice.
 - IX. Warranty should not become void, if PSeGS buys, any other supplemental hardware from a third party and installs it within these machines under intimation to the SI. However, the warranty will not apply to such supplemental hardware items installed.
 - X. The SI shall carry out Preventive Maintenance (PM), including cleaning of interior and exterior, of all hardware and testing for virus, if any, and should maintain proper records at each site for such PM. Failure to carry out such PM will be a breach of warranty and the warranty period will be extended by the period of delay in PM.
 - XI. SI shall procure the client server antivirus licenses (for the field level desktops) as per the requirement of this RFP and maintain them. For that SI shall also make use of antivirus server license procured under the pilot phase.
 - XII. SI shall monitor warranties to check adherence to preventive and repair maintenance terms and conditions.

- XIII. The SI shall ensure that the warranty complies with the agreed Technical Standards, Security Requirements, Operating Procedures, and Recovery Procedures.
- XIV. Any component that is reported to be down on a given date should be either fully repaired or replaced by temporary substitute (of equivalent configuration) within the time frame indicated in the Service Level Agreement (SLA).
- XV. The SI shall develop and maintain an inventory database to include the registered hardware warranties.

4.4.3. Annual Technical Support

As part of the ATS services SI shall provide:

- I. SI shall maintain data regarding entitlement for software upgrades, enhancements, refreshes, replacements and maintenance.
- II. If the Operating System or additional copies of Operating System are required to be installed / reinstalled / de-installed, the same should be done as part of ATS.
- III. SI should carry out any requisite adjustments / changes in the configuration for implementing different versions of Application Software.
- IV. Updates / Patches / Bug fixes: The SI shall provide from time to time the Updates / Patches / Bug fixes of the software, operating systems, etc. as required. The SI should provide free Updates / Patches / Bug fixes of the software and tools to PSeGS as and when released by OEM.
- V. Software License Management. The SI shall provide software license management and control. SI shall maintain data regarding entitlement for software enhancements, refreshes, replacements, and maintenance.
- VI. SI shall have complete manufacturer'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.

4.4.4. Help Desk and Trouble ticket management system

- I. The selected Bidder as part of provisioning support for Department users at field offices and the SDC will setup centralized helpdesk and coordinate with the respective OEMs of the IT Infrastructure deployed at SDC and the Department offices. For the Punjab, the selected Bidder will undertake the following:
 - A. Provide Help Desk services to track and route requests for service and to assist department users in answering questions and resolving problems related to the IT Infrastructure installed at Data Centre and at all the Department Offices .

- B. Become the central collection point for contact and control of the problem, change, and service management processes (This includes both incident management and service request management)
 - C. Shall provide a first level of support for application and technical support at eDistrict implementation locations across the State where the software, hardware, and other infrastructure will be rolled out.
 - D. Provide the following integrated customer support by establishing <9 hrs X 6 days> Help Desk facility for reporting issues/ problems with the software, hardware and other infrastructure.
- II. There shall be an online system deployed centrally and shall be used by the selected Bidder extensively for management of network support activity and handling calls from citizen, departmental staff, any other stakeholders. Service desk is an application that facilitates the end-to-end service support. The proposed system should include required hardware and software.
- III. This proposed software system is expected to facilitate the following:
- A. User Interface:** - The proposed system should have an easy to use user interface (preferably a browser based), so that users across the State can lodge any complaints and service requests. The solution shall have a reporting interface with a consolidated view of the network status. All users (departmental and external) of the system should be able to log a request in the system using any of the following channels:
 - 1. Telephonic call on the Toll-free Helpline (to be provided by SI).
 - 2. email
 - 3. Online chat on the departmental web-portal
 - 4. Through intranet for departmental users or web-portal for external users
 - B. Complete incident and problem management:** - Service desk should address both Incident Management and Problem Management. The application should maintain a classification system that will distinguish the single occurrence trouble tickets or incidents needing immediate resolution from in-depth root cause analyses that may require longer term to resolve a problem.
The flow of events at the call centre should be:
 - 1. Event is triggered and forwarded to service desk.
 - 2. Service desk submits and updates the trouble ticket.Tasks expected:
 - 1. Ticket mapping and allocation: According to the severity, the ticket should be given the priority level. Also it should map the ticket to the appropriate personnel for the resolution.

2. Updating the status: Update the status of ticket.
3. It should be able to log and escalate user interactions and requests.
4. It should have an updateable knowledge base for technical analysis and further help end-users to search solutions for previously solved issues.
5. Status of registered calls with interface for Call centre, using which call centre can inform the status to users over phone.
6. Historical report indicating number of calls, time to resolve, status etc. for a specified period of time.

All relevant infrastructure and supporting system software required for the deployment and operation of the help desk is to be provided by the selected Bidder.

The system deployed by the SI shall be complied with ITIL and ISO 20000 service specifications.

PSeGS shall be provided with an access to the system so as to enable it in viewing the real-time status of various calls logged/ pending/ resolved.

4.5. General Requirements

I. Licensing Requirements

- A. All system software, licenses, etc. have to be procured in the name of the Punjab State e-Governance Society
- B. The licenses should be perpetual and enterprise wide for the core application and other software unless otherwise stated. The software licenses shall not be restricted based on location and the Punjab State e-Governance Society should have the flexibility to use the software licenses for other requirements, if required

II. Asset Management

The selected Bidder shall deploy the asset management tool immediately after the commissioning of IT Infra at State data Centre and shall perform the following asset management functions with respect to the infrastructure deployed at various locations:

- A. Take periodic stock of, review physical inventory and maintain stock registers of hardware at all locations covered under this Project. The selected Bidder would maintain stock registers as per format agreed with the PSeGS.
- B. Maintain documentation of the hardware assets, maintain asset Information for all Project locations, on parameters to be mutually agreed between the PSeGS and the selected Bidder, which shall include details like -
 1. Product type, model number, version number
 2. Manufacturer
 3. Office location
 4. Maintenance status, etc.

- C. Update or correct the asset information following any new installations, movement, addition, or change performed by the selected Bidder.
 - D. Produce periodic reports and machine readable files in agreed upon format pertaining to some or all of the asset information.
 - E. Restrict movement of server/equipment/items in or out of SDC or any other location under the Project without prior permission from the PSeGS/ Respective DeGS.
- III. Warranty and Support
- A. The selected Bidder shall warrant that the IT Infrastructure supplied to the State for this Project shall have no defects arising from design or workmanship or any act or omission of the selected Bidder. The warranty shall remain valid for the Contract period on all the items supplied as per the Contract.
 - B. The selected Bidder shall replace any parts/ components of the IT infrastructure supplied for the Project if the components are defective and during the entire warranty period the selected Bidder shall apply latest upgrades for all the hardware components after appropriate testing. The PSeGS will not pay any additional costs separately for warranty and the overall IT infrastructure cost quoted by the selected Bidder shall include the same.
- IV. Since the Project aims to reuse the common infrastructure created under SDC, SWAN, GSK, SSDG Projects, the selected Bidder will also be required to coordinate with SDC, SWAN, SSDG, GSK teams to ensure that uptime and performance requirements of the RFP are met. However, the selected Bidder shall be held solely responsible for performance and service levels of any infrastructure deployed by the selected Bidder as part of this Contract.
- V. Knowledge Transfer
- A. At the end of the Contract period, the selected Bidder will be required to provide necessary handholding and transition support to designated staff or any other agency that is selected for maintaining the system post the Contract with the selected Bidder. The handholding support will include but not be limited to, conducting detailed walkthrough and demonstrations for the IT Infrastructure, handing over all relevant documentation, addressing the queries/clarifications of the new agency with respect to the working / performance levels of the infrastructure, conducting training sessions etc.
 - B. Knowledge Transfer is an integral part of the scope of work of the selected Bidder. This will have to be done even in case the Contract with the Bidder ends or is terminated before the planned timelines.

Please note that this is only an indicative list. Any other activity, over and above these, as may be deemed necessary by the selected Bidder to meet the service levels and requirements specified in this Contract are also required to be performed by the selected Bidder at no additional cost.

4.6. Exit Management

4.6.1. Purpose

- I. This sets out the provisions, which will apply on expiry or termination of the MSA, the Project Implementation, Operation and Management SLA.
- II. In the case of termination of the Project Implementation and/or Operation and Management, the Parties shall agree at that time whether, and if so during what period, the provisions of this Schedule shall apply.
- III. The Parties shall ensure that their respective associated entities carry out their respective obligations set out in this Exit Management Schedule.

4.6.2. Transfer of Assets

- I. *PSeGS* shall be entitled to serve notice in writing on the SI at any time during the exit management period as detailed hereinabove requiring the SI and/or its sub-contractors to provide the *PSeGS* with a complete and up to date list of the Assets within 30 days of such notice. *PSeGS* shall then be entitled to serve notice in writing on the SI at any time prior to the date that is 30 days prior to the end of the exit management period requiring the SI to sell the Assets, if any, to be transferred to *PSeGS* or its nominated agencies at book value as determined as of the date of such notice in accordance with the provisions of relevant laws.
- II. In case of contract being terminated by *PSeGS*, *PSeGS* reserves the right to ask SI to continue running the project operations for a period of 6 months after termination orders are issued.
- III. Upon service of a notice under this Article the following provisions shall apply:
 - A. in the event, if the Assets to be transferred are mortgaged to any financial institutions by the SI, the SI shall ensure that all such liens and liabilities have been cleared beyond doubt, prior to such transfer. All documents regarding the discharge of such lien and liabilities shall be furnished to the *PSeGS*.
 - B. All risk in and title to the Assets to be transferred / to be purchased by the *PSeGS* pursuant to this Article shall be transferred to *PSeGS*, on the last day of the exit management period.
 - C. *PSeGS* shall pay to the SI on the last day of the exit management period such sum representing the Net Block (procurement price less depreciation as per provisions of Companies Act) of the Assets to be transferred as stated in the Terms of Payment Schedule.
 - D. Payment to the outgoing SI shall be made to the tune of last set of completed services / deliverables, subject to SLA requirements.
 - E. The outgoing SI will pass on to *PSeGS* and/or to the Replacement SI, the subsisting rights in any leased properties/ licensed products on terms not less favourable to *PSeGS*/Replacement SI, than that enjoyed by the outgoing SI.

4.6.3. Cooperation and Provision of Information

During the exit management period:

- I. The 'System integrator' will allow the PSeGS or its nominated agency access to information reasonably required to define the then current mode of operation associated with the provision of the services to enable the PSeGS to assess the existing services being delivered;
- II. Promptly on reasonable request by the PSeGS, the SI shall provide access to and copies of all information held or controlled by them which they have prepared or maintained in accordance with this agreement relating to any material aspect of the services (whether provided by the System integrator or sub-contractors appointed by the <<'System integrator'>>). The PSeGS shall be entitled to copy of all such information. Such information shall include details pertaining to the services rendered and other performance data. The System integrator shall permit the PSeGS or its nominated agencies to have reasonable access to its employees and facilities as reasonably required by the PSeGS to understand the methods of delivery of the services employed by the System integrator and to assist appropriate knowledge transfer.

4.6.4. Confidential Information, Security and Data

- I. The 'System integrator' will promptly on the commencement of the exit management period supply to the PSeGS or its nominated agency the following:
 - A. information relating to the current services rendered and customer and performance data relating to the performance of subcontractors in relation to the services;
 - B. documentation relating to Project's Intellectual Property Rights;
 - C. documentation relating to sub-contractors;
 - D. all current and updated data as is reasonably required for purposes of PSeGS or its nominated agencies transitioning the services to its Replacement <<'System integrator'>> in a readily available format nominated by the PSeGS, its nominated agency;
 - E. all other information (including but not limited to documents, records and agreements) relating to the services reasonably necessary to enable Punjab State e-Governance Society or its nominated agencies, or its Replacement <<'System integrator'>> to carry out due diligence in order to transition the provision of the Services to Punjab State e-Governance Society or its nominated agencies, or its Replacement <<'System integrator'>> (as the case may be).
- II. Before the expiry of the exit management period, the 'System integrator' shall deliver to the PSeGS or its nominated agency all new or up-dated materials from the categories set out in Schedule above and shall not retain any copies thereof,

except that the 'System integrator' shall be permitted to retain one copy of such materials for archival purposes only.

- III. Before the expiry of the exit management period, unless otherwise provided under the MSA, the PSeGS or its nominated agency shall deliver to the 'System integrator' all forms of 'System integrator' >> confidential information, which is in the possession or control of PSeGS or its users.

4.6.5. Employees

- I. Promptly on reasonable request at any time during the exit management period, the 'System integrator' shall, subject to applicable laws, restraints and regulations (including in particular those relating to privacy) provide to the PSeGS or its nominated agency a list of all employees (with job titles) of the 'System integrator' dedicated to providing the services at the commencement of the exit management period.
- II. Where any national, regional law or regulation relating to the mandatory or automatic transfer of the contracts of employment from the 'System integrator' to the PSeGS or its nominated agency, or a Replacement 'System integrator' ("Transfer Regulation") applies to any or all of the employees of the 'System integrator', then the Parties shall comply with their respective obligations under such Transfer Regulations.
- III. To the extent that any Transfer Regulation does not apply to any employee of the 'System integrator', department, or its Replacement 'System integrator' may make an offer of employment or contract for services to such employee of the 'System integrator' and the 'System integrator' shall not enforce or impose any contractual provision that would prevent any such employee from being hired by the PSeGS or any Replacement <<'System integrator'>>.

4.6.6. Transfer of Certain Agreements

On request by the Punjab State e-Governance Society or its nominated agency the 'System integrator' shall effect such assignments, transfers, licences and sub-licences as the PSeGS may require in favour of the PSeGS, or its Replacement 'System integrator' in relation to any equipment lease, maintenance or service provision agreement between 'System integrator' and third party lessors, vendors, and which are related to the services and reasonably necessary for the carrying out of replacement services by the Punjab State e-Governance Society or its nominated agency or its Replacement 'System integrator'.

4.6.7. Rights of Access to Premises

- I. At any time during the exit management period, where Assets are located at the 'System integrator's premises, the 'System integrator' will be obliged to give reasonable rights of access to (or, in the case of Assets located on a third party's premises, procure reasonable

rights of access to) the PSeGS or its nominated agency and/or any Replacement 'System integrator' in order to make an inventory of the Assets.

- II. The 'System integrator' shall also give the PSeGS or its nominated agency or its nominated agencies, or any Replacement 'System integrator' right of reasonable access to the Implementation Partner's premises and shall procure the PSeGS or its nominated agency or its nominated agencies and any Replacement 'System integrator' rights of access to relevant third party premises during the exit management period and for such period of time following termination or expiry of the MSA as is reasonably necessary to migrate the services to the PSeGS or its nominated agency, or a Replacement 'System integrator'.

4.6.8. General Obligations of the 'System integrator'

- I. The 'System integrator' shall provide all such information as may reasonably be necessary to effect as seamless a handover as practicable in the circumstances to the PSeGS or its nominated agency or its Replacement 'System integrator' and which the 'System integrator' has in its possession or control at any time during the exit management period.
- II. For the purposes of this Schedule, anything in the possession or control of any 'System integrator', associated entity, or sub-contractor is deemed to be in the possession or control of the 'System integrator'.
- III. The 'System integrator' shall commit adequate resources to comply with its obligations under this Exit Management Schedule.

4.6.9. Exit Management Plan

- I. The 'System integrator' shall provide the PSeGS or its nominated agency with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects of exit management in relation to the MSA as a whole and in relation to the Project Implementation, and the Operation and Management SLA.
 - A. A detailed program of the transfer process that could be used in conjunction with a Replacement <<'System integrator'>> including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer;
 - B. Plans for the communication with such of the System integrator's sub-contractors, staff, suppliers, customers and any related third party as are necessary to avoid any material detrimental impact on the PSeGS's operations as a result of undertaking the transfer;
 - C. (if applicable) proposed arrangements for the segregation of the 'System integrator's networks from the networks employed by PSeGS and identification of specific security tasks necessary at termination;
 - D. Plans for provision of contingent support to PSeGS, and Replacement 'System integrator' for a reasonable period after transfer.

- II. The 'System integrator' shall re-draft the Exit Management Plan annually thereafter to ensure that it is kept relevant and up to date.
- III. Each Exit Management Plan shall be presented by the 'System integrator' to and approved by the PSeGS or its nominated agencies.
- IV. The terms of payment as stated in the Terms of Payment Schedule include the costs of the 'System integrator' complying with its obligations under this Schedule.
- V. In the event of termination or expiry of MSA, and Project Implementation, each Party shall comply with the Exit Management Plan.
- VI. During the exit management period, the 'System integrator' shall use its best efforts to deliver the services.
- VII. Payments during the Exit Management period shall be made in accordance with the Terms of Payment Schedule.
- VIII. This Exit Management plan shall be furnished in writing to the PSeGS or its nominated agencies within 90 days from the Effective Date of this Agreement.

5. Detailed Implementation and Roll-out Plan

- I. SI shall prepare a detailed roll-out plan for each of the districts in accordance with the implementation timelines provided below and get the same approved by the PSeGS. SI is also responsible for conducting workshops for the key officers (State Apex Committee, District e-Governance Society , NIC, SPMU, NPMU, PSeGS, State DoGR) of the Districts / State for presenting the District-Wise roll-out plan and get the approval of the same.
- II. Before getting the final approval of the PSeGS, the SI shall also provide the necessary assistance for the key stakeholder of the Districts / State during the design and implementation of e-District project in the State. A detailed rollout checklist should be maintained for migrating application to production as well as for location readiness.
- III. One of the important factors that would determine the success of the e-District implementation in the State is the continuous availability of domain experts like Project Manager, Database Administrator, Change Management Expert, Technical Assistance, to the implementation team which would be selected with the approval of State. SI may take services of a domain expert with a minimum of 10 years of experience in the State Departments, to work on this project for successful implementation of the project.

5.1. Implementation timelines

Sr.	Activity	Sub Activity	Timelines (In Months)
I.	Signing of Contract		T
II.	Setting up of Data Centre infrastructure		T + 3
III.	“Go-Live” of 10 Services in all the Districts of State of Punjab – Phase - I	Site preparation for districts w.r.t. first set of 10 services	T + 4
		IT Infrastructure readiness for all districts w.r.t. first set of 10 services	
		Training & capacity building for all districts w.r.t. first set of 10 services	
		Data Digitization/ Migration of concerned records w.r.t. first set of 10 services	
		Any other Activity required for the Go-live of these 10 services	
		UAT of services	
		Go-Live of services	
IV.	“Go-Live” of next set of 25 Services in all the Districts of State of Punjab – Phase – II	Site preparation for districts w.r.t. these 25 services	T + 6
		IT Infrastructure readiness for all districts w.r.t. these 25 services	

Sr.	Activity	Sub Activity	Timelines (In Months)
		Training & capacity building for all districts w.r.t. these 25 services	
		Data Digitization/ Migration of concerned records w.r.t. these 25 services	
		Any other Activity required for the Go-live of these 25 services	
		UAT of services	
		Go-Live of services	
V.	“Go-Live” of remaining 12 Services in all the Districts of State of Punjab – Phase – III	Site preparation for districts for the remaining services	
		IT Infrastructure readiness for all districts w.r.t. all remaining services	
		Training & capacity building for all districts w.r.t. all remaining services	
		Data Digitization/ Migration of concerned records w.r.t. all remaining services	T + 9
		Any other Activity required for the Go-live of remaining services	
		UAT of services	
		Go-Live of services	
VI.	Go-Live of Modified eDistrict application across all the districts of the State including the two pilot Districts – Phase - IV	STQC Certification of finalized eDistrict Application as per Scope of Work	
		Go-Live of Modified eDistrict application	T + 10
VII.	Operations and Maintenance (O & M) Phase		For a period of 5 years after Go-Live of Phase I -IV
VIII.	Successful Exit Management		On successful completion of O & M Phase

Go-Live of the services includes successful District Readiness for all offices, i.e. Completion of all activities/commissioning of all hardware & networking equipments in all the district; i.e. Hardware, Network, Data Digitization, Training, Site preparation, Placement of Technical Manager in the district and the Monthly Transaction to be processed as per the definition of Go-Live in the RFP.

5.2. Service Modules

The list of services to be implemented during various phases (from I to III) is provided below:

Sr.	Phase	Name of Service to be implemented
1.	Phase - I	<ol style="list-style-type: none"> 1. Certificates <ol style="list-style-type: none"> 1.1. Residence Certificate 1.2. Caste Certificate 2. Pension Services <ol style="list-style-type: none"> 2.1. Old age pension 2.2. Financial Assistance to Disabled Persons 2.3. Financial Assistance to Widow & Destitute Women 2.4. Financial Assistance to Dependent children 3. Ration Card related Services <ol style="list-style-type: none"> 3.1. Issuance of New Ration Card for APL/ BPL/ Antodaya 3.2. Modification in Ration Card 3.3. Duplicate Ration Card 3.4. Surrender of Ration Card
2.	Phase – II	<ol style="list-style-type: none"> 4. Arms License Related Services <ol style="list-style-type: none"> 4.1. New Arms License 4.2. Duplicate Arms License 4.3. Renewal of License 4.4. Entry of Weapon 4.5. Addition/Deletion of Weapon 4.6. NOC for Sale of Weapon 4.7. Permission to Carry the Weapon 4.8. Extension of Jurisdiction 4.9. Cancellation of License 4.10. Change of Address 4.11. Addition/Deletion of Retainer 4.12. Change of Bore 4.13. Permission for Deposit of weapon in death Case 4.14. Permission for sale / transfer Weapon in Death Case 4.15. Extension of Cartridges 5. Marriage related Services <ol style="list-style-type: none"> 5.1. Issuance of Marriageability certificate 5.2. Solemnized marriage 5.3. Registration of Marriage under HINDU marriage act 5.4. Registration of Marriage under special Marriage act 6. Birth/ Death Related Services <ol style="list-style-type: none"> 6.1. Issuance of Birth / Death / Not Found certificate 6.2. Addition of Name in Birth certificate 6.3. Correction of Name in Birth / Death certificate 6.4. Late entry of Name in Birth / Death certificate 7. Rural Area Certificate 8. Countersigning of documents
3.	Phase – III	<ol style="list-style-type: none"> 9. Agriculture License Related Service <ol style="list-style-type: none"> 9.1. New/Renewal of Agriculture Licenses 9.2. Issuance of Duplicate Agriculture license 9.3. Addition in license of Items

Sr.	Phase	Name of Service to be implemented
		<p>9.4. Addition in license of Godown</p> <p>10. Copying</p> <p>11. Right to Information Services</p> <p>12. Grievance Redressal system</p> <p>13. Revenue court cases</p> <p>14. Issue of notices</p> <p>15. Listing of cases</p> <p>16. Govt. dues & Recovery - Issue of notices / Updation of treasury receipts</p> <p>17. Attestation of affidavit / indemnity bond / surety bond</p> <p>18. Issuance of ID cards</p>

6. Annexures

6.1. Non-Functional Requirements

The non-functional requirements relating to performance, availability, deployment, implementation, operations and others are listed in the subsequent subsection. Based on the assessment of the requirements listed below, SI shall prepare System Requirement Specifications (SRS) and obtain a formal sign-off before proceeding with the design and implementation of the solution.

#	Non-functional Requirements
Technical Solution Architecture Requirements	
I.	The e-District solution needs to be architected using robust and proven software and hardware technologies like Service-Oriented Architecture (SOA) and open industry standards. Framework architecture be based upon industry standards and proven technology components, which reduces the total risk of solution. Loosely coupled Service Oriented Architecture to provide flexibility and agility of eDistrict solution Framework.
II.	An approach based on speciality driven pre-integrated capabilities - like enterprise document management system, business process manager, analytics, dashboard, unified view of service situation, collaboration tools and easy to develop design builders
III.	Wizard driven designer & template approach should allow the user to very quickly build a solution
IV.	The widgets based development should expose all events and capabilities programmatically, empowering solution Developers to create rapidly deployable custom-built UIs.
V.	Making reuse of components which reduces the time-frame of implementing new functionalities.
VI.	The solution architecture should be built on sound architectural principles enabling fault-tolerance, high-performance, and scalability both on the software and hardware levels.
VII.	Framework architecture be extensible and flexible to incorporate new functionalities, products and technologies as they become available.
Software Architecture Requirements	
I.	Software architecture must support web services standards including XML, SOAP, UDDI and WSDL
II.	Software architecture must support appropriate load balancing for scalability and performance
III.	Software architecture must support flexibility in adding functionalities or applications.
IV.	Software architecture components should utilize the high availability, clustering, and load balancing features available in the proposed hardware architecture to increase system performance and scalability features.
V.	Software architecture must support trace logging, error notification, issue resolution and exception handling.
Hardware Architecture Requirements	
I.	Hardware architecture at SDC must provide redundancy and high availability capabilities at the hardware level; this includes servers, etc. However, the hardware infrastructure for the DRC can be as per the SDC specifications.
II.	All servers and systems must be configured with no single point of failure.

III.	Hardware architecture should be capable of consolidating several applications / workloads in a number of servers as required.
IV.	Servers must be placed within proper security infrastructure for the Solution.
V.	Hardware architecture must support existing Storage Area Network (SAN) & backup solution (at SDC)
VI.	The technical solution architecture for e-District should be sound and complete with high performance, redundancy, and scalability.
Development, Testing, Staging, and Production Requirements	
I.	Appropriate development, test, and staging hardware environments should be provided and explained how they are related to production environment. This must be supported by explanations on how the development, test, and staging environment support the implementation activities of e-District Solution.
II.	Development and test environment should include configuration management capabilities and tools for system configuration, versioning scheme, documentation, change control processes and procedures to manage deployment of solution deployment.
III.	The test, development, and staging environment should include required workstations, desktops, and tools appropriate to support development, testing, and staging, and deployment tasks.
IV.	The development, test, and staging hardware environments must include similar operating systems, software components, products, and tools to those of production environment.
V.	The development, test, and staging environments should be independent logically and physically from the production environment and of each other.
VI.	The development environment should be used for development and should be configured to allow access for developers' workstations.
VII.	The staging environment should be used for functional and user acceptance testing, stress testing, and performance benchmarking.
VIII.	The test environment should be used as a testing environment of e-District Solution and its software components and products. The test environment should be a scaled-down configuration of the production environment.
Security Requirements	
I.	A secure solution should be provided at the hardware infrastructure level, software level, and access level.
II.	Authentication, Authorization & Access Control 3 factors (User ID & Password, Biometric, and Digital Signature) security mechanisms should be implemented to enable secure login and authorized access to portal information and services.
III.	Encryption Confidentiality of sensitive information and data of users and portal information should be ensured.
IV.	Appropriate mechanisms, protocols, and algorithms necessary to protect sensitive and confirmation data and information both during communication and storage should be implemented.
Monitoring and Management Requirements	
I.	The e-District Solution should provide monitoring and management of the entire Solution including all software components and application.
II.	The monitoring and management should monitor health of software and hardware

	infrastructure running the e-District Solution covering operating system, database, software components, applications, servers, and other related software and hardware components. It should provide proactive monitoring, alerting and reporting.						
Performance and Scalability Requirements							
I.	The design of the e-District Solution should be scalable to handle increasing number of users.						
II.	e-District Solution should provide measurable and acceptable performance requirements for users, for different connectivity bandwidths.						
III.	The e-District solution should provide optimal and high performance Portal Solution satisfying response time for slow Internet connections and different browsers.						
Implementation Requirements							
I.	The SI will be required to deploy manpower and other project resources as per the terms & conditions of the Contract						
II.	The SI will be required to work closely with the PSeGS and perform detailed functional requirements and analysis of e-District Solution to confirm and document functional / system requirement specifications for the portal and its applications to fulfil its objectives.						
III.	The SI will be expected to carry the complete implementation and deployment of the e-District within the timelines specified in the RFP.						
IV.	The SI is expected to develop, test, stage, and deploy all functional modules of the e-District software and any hardware components of technical & functional requirements						
Project Management							
I.	Selected bidder is required to provide an implementation plan illustrating all functional analysis, development, testing, staging, and deployment activities.						
II.	Selected bidder is required to specify and describe the different phases and activities of the project. It is very important for the PSeGS that the Selected bidder provide a quality implementation plan covering all aspects of the project. The plan shall clearly specify the start and end dates (relative to contract signing) of each of the project phases specifying key milestones allowing visibility of project progress.						
III.	Selected bidder is required to use standard project management tools such as precedence diagrams, critical path charts, etc. to create and manage implementation plan and schedule. The table below shows the minimum stages and deliverables:						
	<table border="1"> <thead> <tr> <th>Stage</th> <th>Activities</th> <th>Deliverables</th> </tr> </thead> <tbody> <tr> <td>Functional & Requirements Analysis</td> <td>Define Functional Requirements Requirements management Prototyping Documentation Data Migration Preparation</td> <td>Software Requirements and Specifications Document Detailed Scope of Work Work Breakdown Structure Detailed Project Schedule Data Migration Plan</td> </tr> </tbody> </table>	Stage	Activities	Deliverables	Functional & Requirements Analysis	Define Functional Requirements Requirements management Prototyping Documentation Data Migration Preparation	Software Requirements and Specifications Document Detailed Scope of Work Work Breakdown Structure Detailed Project Schedule Data Migration Plan
Stage	Activities	Deliverables					
Functional & Requirements Analysis	Define Functional Requirements Requirements management Prototyping Documentation Data Migration Preparation	Software Requirements and Specifications Document Detailed Scope of Work Work Breakdown Structure Detailed Project Schedule Data Migration Plan					

	Design	Detailed Software Solution Architecture design Detailed Hardware Solution Architecture Design Data Schema design User Interface Design Integration & Interfaces Design Prototyping design Validation Documentation	Design Specifications Documents of Software solutions Design Specifications Documents of Hardware solutions User Interface Design Specifications Integration Design Specifications Data design and migration
	Development	Software installation, configuration, and customization Hardware installation and configuration Development Unit Testing Documentation	Development Plan Updated Design Document Installed software and hardware Functional modules & Portal Solution Problem reporting
	Testing	System Testing Integration Testing Stress Testing User Acceptance Test Results Completed Test Cases Data Migration tests Documentation	Complete Test Cases Test Plan User Acceptance Criteria Problem reporting Problem resolution testing Data Migration Testing
	Deployment	Training courses and sessions Operations Planning User Manual Operations Manuals	Knowledge Transfer and training plan Operations Plan Operations Policies and Procedures
IV.	Selected bidder is required to describe in detail project management processes, methodologies and procedures.		
V.	Describe what PSeGS resources will be necessary for the project to succeed.		
VI.	Describe how PSeGS management will receive up-to-date reports on project status.		
VII.	Describe the change management procedures to handle such things as “out-of-scope” requests or changing business needs of PSeGS while the project is underway.		
VIII.	Describe what procedures will be used to keep the project on track, and what escalation procedures will be employed to address any problems with project progress.		
IX.	Describe what quality assurance processes, procedures, formal reviews, etc. will be in place.		
X.	Describe the proposed conflict resolution / escalation process between the Bidder and PSeGS to handle project or contractual disputes.		
XI.	Selected bidder is required to describe the proposed project structure identifying all project individuals including project manager, business analysts, software developers, QA engineers, hardware / network engineers, administrators, Change Management experts, and others.		
XII.	Selected bidder shall provide a comprehensive warranty that covers all components after the issuance of the final acceptance of e-District. The warranty should cover all materials, licenses,		

	<p>services, and support for both hardware and software. Selected bidder shall administer warranties with serial number and warranty period. Upon final acceptance of the PSeGS, all OEM warranties will be transferred to the PSeGS at no additional charge. All warranty documentation (whether expired or not) will be delivered to PSeGS at the issuance of the final acceptance certificate.</p>
XIII.	<p>Selected bidder is required to provide Premium Level warranty and support through the vendor for all hardware and software used for e-District. Selected bidder' warranty must cover all equipment and work activities contained in the contract against all design, manufacturing, and environment faults until the issuance of the final acceptance.</p>
XIV.	<p>Selected bidder is required to commit to the following warranty terms:</p> <p>All products / components / parts shall be covered under OEM warranty up to the Implementation Phase and AMC support shall commence after successful implementation. The warranty shall include the repair or replacement of the products / components / parts during the warranty period by the bidder. The replacement products / components shall meet the related specifications without further repair or modification.</p> <p>Selected bidder shall be liable for all costs including, but not limited to, the costs of material, labour, travel, transport and living expenses associated with the collection and return of the units covered by the warranty.</p> <p>The date of manufacture or assembly of any equipment, parts or consumables, shall not be more than six months before delivery.</p> <p>Selected bidder shall state the location of his repair Centre(s) for all items not being repaired onsite.</p> <p>PSeGS has the right to require a replacement if the repair is deemed to be impractical.</p> <p>Selected bidder ensures that replacement components shall be available for any failed component during the warranty period.</p> <p>Selected bidder shall guarantee the availability of spare parts and technical assistance for all components (or appropriate alternatives) to ensure the equipment would run for at least five (5) years, without major changes, at the completion of final acceptance. Six months advance notice is required on any discontinued part(s) with a suggestion for alternatives.</p> <p>Selected bidder need to define the process & methodology in their proposal, for achieving the response time of engineers to respond to an incident and also for resolving such incidents as per the SLA.</p> <p>Selected bidder is required to provide additional training if the satisfaction levels/ learning does not reach 80% in evaluation/feedback from trainees, and expected to provide additional training, if required.</p> <p>The e-District application & infrastructure being provisioned by the bidder shall be insured. The Goods supplied under the Contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery for the entire project term.</p> <p>Selected bidder is required to explain their warranty, maintenance procedures, and support to meet the terms and requirements outlined above.</p>
Operations Requirements	
I.	<p>The selected bidder is expected to provide the following in support of e-District operations:</p> <p>Selected bidder shall provide procedure documentation for all operations procedures, and SLA's (based on ITIL best practices) for all the hardware and applications provided including backup procedures, system update procedures, security procedures, failure recovery</p>

	<p>procedures, upgrade procedures, remote access procedures, user manual, SOP's, etc.</p> <p>All such procedures and documents must be submitted for review and approval by the PSeGS prior to adoption. Such documentation shall be updated by the during the project term by the bidder as and when required along with the necessary approval.</p> <p>Selected bidder will be required to provide PSeGS with weekly statistics reports on the various services provided to users a mechanism as well as track and log all related statistical reports on the various delivery channels and access patterns.</p> <p>Selected bidder will be required to provide PSeGS with weekly portal performance reports showing health of system operations.</p> <p>Selected bidder will be required to provide PSeGS with Helpdesk for recording all the day to day problems and other technical incidents occur during the O&M phase. This shall also record the resolution of such incidents & problems.</p> <p>Selected bidder will be required to commit to Service Level Agreements (SLAs) that show, among other metrics, appropriate escalation procedures and guarantee corrective actions within a pre-determined time. Selected bidder is required to respond to required levels of accuracy, quality, completeness, timeliness, responsiveness, cost-effectiveness, productivity and user satisfaction that are equal to or higher than the SLA system requirements.</p>
Quality Assurance & Acceptance Requirements	
I.	Selected bidder is required to develop and implement quality assurance processes and procedures to ensure that the e-District development and operations are performed to meet the quality standards that are relevant to each area in all project phases.
II.	Selected bidder is required to use various tools and techniques that can make tests run easily and the results are automatically measured. In this way, testing tools provide a more cost-effective and efficient solution than their manual counterparts. Plus, they minimize the risk of human error during testing.
III.	<p>In order to ensure that such a QA mechanism is effective and acceptance of e-District, the following tests are required for acceptance:</p> <p>Unit Testing: Basic validation of developed components by developers.</p> <p>Functional / Internal Integration Testing: Validation of developed components against functional requirements and design specifications.</p> <p>System Testing: Validation of both functional and technical requirements for the integrated Solution. This could include external integration if required or it can be separated into testing phases.</p> <p>UAT: User Acceptance Testing (UAT) validation of the Portal Solution and assurance that it meets both functional and technical requirements</p> <p>Stress and Performance Testing: Load testing enabling understanding of performance and behaviour of Portal Solution under large number of users and high-load conditions.</p>
IV.	Selected bidder is required to describe their QA and testing approaches and procedures as well as testing tools for conducting various tests in support of the acceptance of the Portal Solution. Selected bidder is expected to follow CMMi level 5 processes.
V.	<p>Furthermore, Selected bidder to describe their documentation standards e.g. Documentation description, documentation identification, content, nomenclature etc. as well.</p> <p>Sample documents to be enclosed as part of the technical proposal.</p>

6.2. High Level Functional Requirement

Sr.	Functional Requirements
1.	Should be able to auto generate reports regarding service requests which have breached service levels. Such reports shall be automatically marked to the mail ID/ user ID of Right to Service Commission.
2.	Should be able to generate notices in the pre-defined format for the service requests which have breached the Service level agreement.
3.	Should be integrated with Biometric devices like thumb/ palm reader.
4.	Should integrate with & directly merge the input from digital signature pad/ webcam with the service request.
5.	Should be able to send final generated output to the applicant's mail address.
6.	Should be able to register the citizen on the e-District portal.
7.	System should store the output certificates generated by the eDistrict application, in document (like image or PDF etc.) shape. The final output shall be printed from this document only and not by pulling data from saved datasets.
8.	System should have capability to define user access related to various aspects like. For officials – modification, updation, view, etc. related accesses For Operators – service request submission related And similar other rights
9.	System should have capability for handling temporary routing of service requests when a post is vacant, person is on leave etc.
10.	System should provide dashboard view to various officials on different aspects like: <ul style="list-style-type: none"> ➤ Number of services ➤ Status ➤ Fees received ➤ Etc.
11.	When a user login into his/ her account application should send a message to his/ her account regarding the same.
12.	Should be able to integrate various service availed by a citizen basis on UID number.
13.	Should be able to generate a watermark (may be logo of Punjab Government) in the background of every output being generated through e-District.
14.	The MIS generation should be facilitated at various levels of officers like Sub-District, District & State level.
15.	System should facilitate printing of comments entered by an official along with other required service details.
16.	System should be able to generate real-time reports regarding present user load, currently logged in users, log history and other such details.
17.	Any end user acting on a service request under eDistrict should have multiple routing options to send the request backward or forward.
18.	The digital signing should be integrated with the approval of service request only. No separate action should be initiated for that.
19.	Should be able to validate applicant's UID number through link provided to CIDR, Bangalore.
20.	System should maintain all logs & audit trails.

21.	Should provide an option to all officials to retrieve any case file being processed or already processed by them. The system should be able to print the complete case file including the supporting documents.
22.	Should be able to generate at-least 10 standard reports for each service.
23.	Should be able to maintain a repository of supporting documents submitted by an applicant so as to avoid duplication of documents while applying for another service, which requires the submission of supporting documents which have already been submitted by the applicant under some other service availed through eDistrict. System should segregate the scanned supporting documents from other citizen data and keep them in document management system. The segregation of documents shall also be required for the data accumulated during pilot implementation and phase I, II & III of State wide implementation.
24.	The application should also have an in-built dictionary for converting the text entered into English into Punjab and vice-a-versa. This feature should be integrated with the input application forms. This feature should also be used in data digitization of legacy records. Also the dictionary should be self-learning so as to further enrich the content.
25.	There shall be a common module from where copy of already issued certificates through eDistrict application, be provided to the applicant.
26.	The application will have a graphical user interface for the administration user interface.
27.	The application will have a graphical user interface for administration of business processes.
28.	The applications will have a graphical interface for administration modules for content management.
29.	The Application must have the functionality to deny access to documents and folders based on user names or belonging to a group of users. The application should have the functionality to define the security rights at the document using access control lists for each object. The application should have the functionality to define the security rights at the directory by using access control lists for each object.
30.	The application should enable the storage of content in various formats including text files, spreadsheet files, video, audio, binary and other.
31.	The application should have the functionality of search content including full-text "search by content.
32.	The solution should be completely modular and should allow the organization to add the additional service management modules on a need basis in future
33.	Proposed tool should provide the ability to define unlimited real-time KPI dashboards that provides insight into multiple levels of service operations so that support staff, managers and executives can monitor role-based key performance indicators using an intuitive, graphical display from any Web-based client. It should allow us to include any no. of KPI graphs within the single dashboard depending upon our requirements.
34.	Should include out-of-box reports via a built-in reporting engine. At the same time it should allow us to generate customized reports.
35.	Regarding workflow engine: <ol style="list-style-type: none"> I. The workflow engine must have the functionality to view statistical reports on work assignments. II. Should have the functionality to automatically initiate business processes based on

	<p>system events such as receipt of content.</p> <p>III. Should support multiple documents/folder attachments in the process.</p> <p>IV. Should have procedural points that have the functionality for content management.</p> <p>V. Should have the functionality for processing the tasks to the next step in the business process.</p> <p>VI. Should have a tool to monitor who and what is done in a particular item f business process and when the task completed.</p> <p>VII. Should have the functionality that enables business process change at any time without affecting the operation of end user.</p> <p>VIII. Should have the functionality to systematic version control processes.</p> <p>IX. Should have a graphical interface for modelling business processes.</p> <p>X. Should ensure that tasks can be seen only by those users/ groups who do have security rights.</p> <p>XI. Should allow users to make check in/out documents that were attached to the process.</p> <p>XII. Should have the functionality to end-user displays instructions on how to perform a specific task.</p> <p>XIII. Should have the functionality that the user can see which are the key point is reached in a particular process.</p>
<p>36.</p>	<p>Regarding Offline Service Module:</p> <p>I. Should provide an option of scheduled synchronization event at user pre-defined interval.</p> <p>II. Should be able to synchronize data and made consistent with central database server upon user request.</p> <p>III. During offline mode the offline solution should be able to handle messages in the local container.</p> <p>IV. Should be able to resolve the conflict while synchronizing the data.</p> <p>V. The offline application should be automatically updated with any new changes (like application code, data and database schema change, etc.)</p>

6.3. High Level Functional Requirements of Mobile Application

- Development of lighter webpage for access through mobile phones.
- Key Functional Requirement of Mobile application of eDistrict Software
 - 1 About E-district
 - It will display the details about e-district project.
 - 2 List of Services and Documents required
 - It will display the list of services link providing under e-district Project.
 - After clicking on the service link, it will display the prerequisite document required to avail the services under e-district project.
 - 3 Government Orders/Guidelines
 - It will display the government orders issued under e-district project.
 - 4 Verification Status of the issued documents
 - It will be used to display the verification status of Application through DSN number.
 - 5 Status Tracker of application submitted
 - It will be used to display the status of Application through application number provided to citizen.
 - 6 Feedback
 - It will be used to enter the feedback through citizen.
 - 7 Departmental officials' login access for checking MIS reports, Pendency etc
 - 8 Contact Details of Concerned officials/Suwidha Centers/Helpdesks

Apart from these points, other functionalities related to citizen interface for service delivery will be included in the scope of the work.

6.4. Implementation Locations

Sr. No	Name of District	Name of all Blocks	Name of all Tehsils/ Revenue Circles
1	Amritsar	1. Ajnala 2. Chagawan 3. Harsha china 4. Jandiala 5. Majitha 6. Rayya 7. Tarsika 8. Verka	1. Amritsar-1 2. Amritsar-II 3. Ajnala 4. Baba bakala
2	Bathinda	1. Bathinda 2. Sangat 3. Nathana 4. Rampura 5. Phul 6. Maur 7. Bhagata bhaika	1. Bathinda 2. Rampuraphul 3. Talwandisabo Sub Tehsils are 1. Bhagta Bhaika 2. Sangat 3. Maur

		8. Talwandi sabo	4. Nathana
3	Barnala	1. Barnala 2. Mehal Kalan 3. Sehna	1. Barnala 2. Tapa Sub-Tehsils: 1. Dhaunala 2. Bhadaur
4	Faridkot	4. Faridkot 5. Kotkapura	1. Faridkot (Need to Confirm both) 2. Jaiton Sub-Tehsils: 1. Kotkapura 2. Sadiq
5	Fatehgarh Sahib	1. Sirhind 2. Bassi pathana 3. khamano 4. amloh 5. khera	1. Amloh 2. Bassi pathana 3. Khamano 4. Fatehgarh sahib Sub-Tehsil 5. Mandi Gobindgarh
6	Ferozepur	1. Guru Harsahai 2. Ferozepur 3. Mamdot 4. Ghall Khurd 5. Zira 6. Makhu	1. Ferozepur 2. Zira 3. Guru Harsahai Sub-Tehsils 4. Mamdot 5. Talwandi Bhai 6. Makhu
7	Gurdaspur	1. Gurdaspur 2. Kalanaur 3. Dhariwal 4. Kahnuwan 5. Dinanagar 6. Batala 7. Fatehgarh Churian 8. Dera baba nanak 9. Sri Hargobindpur 10. Qadian 11. Sujampur 12. Dorangla	1. Gurdaspur 2. Batala 3. Dera baba Nanak Sub-Tehsils 1. Kahnuwan 2. Kalanaur 3. Dinanagar 4. Naushehra Majha Singh 5. Dhariwal 6. Shri Hargobindpur 7. Fathegarh Churian 8. Qudian
8	Hoshiarpur	1. Hoshiarpur I 2. Hoshiarpur II 3. Bhunga 4. Tanda 5. Dasuya 6. Mukerian	1. Hoshiarpur 2. Dasuya 3. Garshankar 4. Mukerian Sub Tehsils 5. Bhunga

		<ol style="list-style-type: none"> 7. Talwara 8. Hajipur 9. Mahilpur 10. Garshankar 	<ol style="list-style-type: none"> 6. Tanda 7. Gardhiwala 8. Talwara 9. Mahilpur
9	Jalandhar	<ol style="list-style-type: none"> 1. Jalandhar East 2. Jalandhar West 3. Bhogpur 4. Adampur 5. Nakodar 6. Shahkot 7. Phillaur 8. Nurmahal 9. Lohian 10. Rurka kalan 	<ol style="list-style-type: none"> 1. Jalandhar I 2. Jalandhar II 3. Nakodar 4. Phillaur 5. shahkot Sub Tehsils <ol style="list-style-type: none"> 1. Adampur 2. Katarpur 3. Bhogpur 4. Nurmahal 5. Goraya 6. Mehat pur 7. Lohian
10	Ludhiana	<ol style="list-style-type: none"> 1. Dehlon 2. Doraha 3. Jagraon 4. Khanna 5. Ludhiana I 6. Ludhiana II 7. Machiwara 8. Pakhowal 9. Samrala 10. Sindhwa bet 11. Sudhar 12. Raikot 	<ol style="list-style-type: none"> 1. Ludhiana East 2. Ludhiana West 3. Khanna 4. Samrala 5. Jagraon 6. Payal 7. Raikot
11	Mansa	<ol style="list-style-type: none"> 1. Mansa 2. Budhladha 3. Sardulgarh 4. Bhikhi 5. Jhunir 	<ol style="list-style-type: none"> 1. Mansa 2. Budhladha 3. sardulgarh
12	Moga	<ol style="list-style-type: none"> 1. Moga-I 2. Moga-II 3. Baghapurana 4. Nihal Singh Wala 5. Kot-ise-khan 6. Dharamkot 	<ol style="list-style-type: none"> 1. Moga 2. Baghapurana 3. Nihal singh wala
13	Mukatsar	<ol style="list-style-type: none"> 1. Mukatsar 2. Malout 3. Lambi 4. Kotbhai at gidarhbaha 	<ol style="list-style-type: none"> 1. Sri mukatsar sahib 2. Malout 3. Gidarhbaha

14	Mohali	<ol style="list-style-type: none"> 1. Kharar 2. Majri 3. Dear bassi 	
15	Patiala	<ol style="list-style-type: none"> 1. Patran 2. Nabha 3. Patiala 4. Sanaur 5. Rajpura 6. Ghanaur 7. Samana 8. Bhunerheri 	<ol style="list-style-type: none"> 1. Patran 2. Nabha 3. Samana 4. Patiala 5. Rajpura
16	Rupnagar	<ol style="list-style-type: none"> 1. Anandpur sahib 2. Chamkaur sahib 3. Morinda 4. Nurpur bedi 9. Rupnagar 	<ol style="list-style-type: none"> 1. Anandpur sahib 2. Chamkaur sahib 3. Rupnagar 4. Nangal
17	Tarn taran	<ol style="list-style-type: none"> 1. Bhikhiwind 2. Chohla Sahib 3. Gandiwind 4. Khadoor Sahib 5. Naushera Pannuan 6. Patti 7. Tarn Taran 8. Valtoha 	<ol style="list-style-type: none"> 1. Tarn Taran 2. Patti 3. Khadur Sahib Sub Tehsil <ol style="list-style-type: none"> 1. Jhabal 2. Chohla Sahib 3. Khemkaran 4. Bhikhiwind 6. Goindwal Sahib
18	Sangrur	<ol style="list-style-type: none"> 1. Malerkotla-I 2. Malerkotla-II 3. Dhuri 4. Sherpur 5. Mehal Kalan 6. Sehna 7. Barnala 8. Sangrur 9. Bhawani -garh 10. Sunam 11. Lehra 12. Andana 13. Moonak 	<ol style="list-style-type: none"> 1. Sangrur 2. Sunam 3. Malerkotla 4. Barnala 5. Moonak
19	Fazilka	<ol style="list-style-type: none"> 1. Abohar 2. Fazilka 3. Jalalabad 	<ol style="list-style-type: none"> 1. Abohar 2. Fazilka 3. Jalalabad Sub-tehsils <ol style="list-style-type: none"> 1. Arniwala sheikh suban 2. Seeto guno 3. Khuwin sarover

20	Pathankot	<ol style="list-style-type: none"> 1. Pathankot 2. Bamail 3. Narot Jaimal Singh 4. Dhar Kalan- 	<ol style="list-style-type: none"> 1. Pathankot 2. Dhar Kalan Sub-Tehsil 3. Narot jaimal singh 4. bamial
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Please note that above mentioned list is indicative only that too till Block level and there may be variation in the same. However the System Integrator needs to cover all office locations related to the services under the project, List of same shall be provided to SI.

6.5. Volume - Data Digitization & Data Migration

6.5.1. Data digitization

Sr,	Name of Record	Volume	Remarks
1.	Birth Registration	'32,00,000' (thirty two lakhs approximately)	SI shall be required to enter the record data in the data entry module, Scan the complete record page and also the particular record entry in the strip shape (to be attached with particular record entry).
2.	Death registration	'9,50,000' (Nine lakh fifty thousand approximately)	SI shall be required to enter the record data in the data entry module, Scan the complete record page and also the particular record entry in the strip shape (to be attached with particular record entry).
3.	Agriculture License	'12,000' (twelve thousand)	SI shall be required to enter the license data in the data entry module and Scan & attach the license with the particular record entry.
4.	Ration card	'5,00,000' (five lakh)	SI shall be required to digitize the ration card data as per the sample attached and the requirements.

6.5.2. Data Migration

Sr.	Database Name	Description	Location of Database
1.	Arms license	The Arms license issuance data is maintained by Suwidha centres or District administration	Suwidha centres or District administration
2.	Marriage	This related to already issued marriage certificates like Marriage registration, Solemnization & Marriageability certificate	Suwidha centres
3.	Birth/ Death	The Birth/ Death data is being digitized by Health Department under separate initiative.	Health Department
4.	Residence/ Caste/ Rural area certificate	This related to already issued certificates to the citizen.	Suwidha centres

SI shall be responsible to integrate the existing ration card database with eDistrict application, so that eDistrict application is able to update the same (on real time basis) as per ration card related service deliveries happening through eDistrict application

PSeGS may extend the scope of SI to digitize/ migrate the data existing in the pilot districts. In that case SI will be paid on actuals as per the unit rates quoted under this bid.”

6.5.3. Data Entry field in the data entry module

6.5.3.1. Birth Data entry Module

- I. Date of Birth*
- II. Sex*
- III. Name of child*
- IV. Father's Name*
- V. Grand father's Name*
- VI. Mother's Name*
- VII. Mother's Age*
- VIII. Place of Birth*
- IX. Address of child at the time of birth*
- X. Informer Name*
- XI. Informer Address*
- XII. Region*
- XIII. State*
- XIV. District*
- XV. Block*
- XVI. Police Station*
- XVII. City/Village*
- XVIII. Family Religion*
- XIX. Father's Qualification*
- XX. Mother's Qualification*
- XXI. Father's Occupation*
- XXII. Mother's Occupation*
- XXIII. Mother's Age at the time of Marriage*
- XXIV. Mother's Age at the time of Child Birth*
- XXV. No of children alive*
- XXVI. help during birth*
- XXVII. Delivery*
- XXVIII. Weight of Child*

6.5.3.2. Agriculture Data entry Module

- I. Application Type*
- II. Owner's photo*
- III. License No*
- IV. Date of Issuing*
- V. Name of Firm*
- VI. Name of Licensee*
- VII. Licensee's Father's Name*

- VIII. *Issuing Authority*
- IX. *Sale Address*
- X. *Godown Address*
- XI. *Licensee's Address*
- XII. *Valid From*
- XIII. *Valid Upto*
- XIV. *License Scan page1 (Attachment)*
- XV. *License Scan page2 (Attachment)*
- XVI. *Name of Company*
- XVII. *Source of Supply*
- XVIII. *Name of Fertilizer*
- XIX. *Brand*
- XX. *Valid Upto*

6.5.4. Sample records

6.5.4.1. Birth Register

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ਫਾਰਮ
ਜਨਮ

ਰਜਿਸਟਰੇਸ਼ਨ ਕੇਂਦਰ ਦਾ ਨਾਮ.....

ਰਜਿਸਟਰੇਸ਼ਨ ਨੰਬਰ	ਰਜਿਸਟਰੇਸ਼ਨ ਦੀ ਮਿਤੀ	ਜਨਮ ਦੀ ਮਿਤੀ	ਲਿੰਗ (ਲੜਕਾ/ਲੜਕੀ ਦਰਜ ਕੀਤਾ ਜਾਵੇ)	ਬੱਚੇ ਦਾ ਨਾਮ (ਜੇ ਕੋਈ ਨਾ ਹੋਵੇ ਜੇਕਰ ਨਾਮ ਨਹੀਂ ਰੱਖਿਆ ਤਾਂ ਖਾਲੀ ਛੱਡ ਦਿੱਤਾ ਜਾਵੇ)	ਪਿਤਾ ਦਾ ਨਾਮ	ਦਾਦੇ ਦਾ ਨਾਮ	ਮਾਤਾ ਦਾ ਨਾਮ ਅਤੇ ਉਮਰ
1	2	3	4	5	6	7	8

ਨੰ: 8

12 ਅਤੇ 17)

ਪੰਜਾਬ ਸਰਕਾਰ ਪੇਸ਼, ਮੋਹਾਲੀ/2003/07-2010

ਰਜਿਸਟਰ

ਪੰਚਾਇਤ/ਨਗਰ ਖੇਤਰ ਜਿਲ੍ਹਾ

ਬੱਚੇ ਦੇ ਜਨਮ ਸਮੇਂ ਮਾਤਾ ਪਿਤਾ ਦਾ ਪਤਾ	ਮਾਤਾ ਪਿਤਾ ਦਾ ਪਿਕਾ ਪਤਾ	ਜਨਮ ਸਥਾਨ ਹਸਪਤਾਲ/ਸੰਸਥਾ ਦਾ ਨਾਮ/ਘਰ ਦਾ ਪਤਾ	ਜਨਮ ਦੀ ਤਰੀਖ (ਕੇਵਲ ਜਿੰਦੇ ਜੰਮੇ ਬੱਚੇ)	ਜਨਮ ਸਮੇਂ ਬੱਚੇ ਦਾ ਭਾਰ (ਕਿਲੋਗ੍ਰਾਮ ਵਿਚ)	ਸੂਚਨਾਕਾਰ ਦਾ ਨਾਮ ਅਤੇ ਪਤਾ	ਰਜਿਸਟਰਾਰ/ਸਬ-ਰਜਿਸਟਰਾਰ ਦੇ ਦਸਤਖਤ	ਵਿਸ਼ੇਸ਼ ਕਾਮ
9(ੳ)	9(ਅ)	10	11	12	13	14	15

6.5.4.2. Death Register

ਮਿਤਕ ਨੰਬਰ 272

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ਫਾਰਮ

ਮੌਤ

ਰਜਿਸਟਰੇਸ਼ਨ ਕੇਂਦਰ ਦਾ ਨਾਮ..... ਪੰਚਾਇਤ/.....

ਮਿਤਕ ਨੰਬਰ	ਰਜਿਸਟਰੇਸ਼ਨ ਦੀ ਮਿਤੀ	ਮੌਤ ਦੀ ਮਿਤੀ	ਮਿਤਕ ਦਾ ਨਾਮ	ਮਿਤਕ ਦਾ ਲਿੰਗ (ਪੁਰਖ/ਇਸਤਰੀ)	ਮਿਤਕ ਦੀ ਉਮਰ	ਮਿਤਕ ਦੇ ਪਿਤਾ/ਪਤੀ ਦਾ ਨਾਮ	ਮਿਤਕ ਦੀ ਮਾਤਾ ਦਾ ਨਾਮ
1	2	3	4	5	6	7	8

ਪੰਜਾਬ ਸਰਕਾਰ ਖੋਲ੍ਹ ਮਾਫੀ, 2005/77-2010

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12 ਸਾਲ 17)

ਰਜਿਸਟਰ

ਗਰ ਖੇਤਰ..... ਜ਼ਿਲ੍ਹਾ.....


ਮਿਤਕ ਦਾ ਮੌਤ ਸਮੇਂ ਪਤਾ	ਮਿਤਕ ਦਾ ਪੱਕਾ ਪਤਾ	ਮੌਤ ਦਾ ਸਥਾਨ		ਮੌਤ ਦਾ ਕਾਰਣ	ਸੂਚਨਾਕਾਰ ਦਾ ਨਾਮ ਅਤੇ ਪਤਾ	ਰਜਿਸਟਰਾਰ/ਸਬ-ਰਜਿਸਟਰਾਰ ਦੇ ਹਸਤਾਖਰ	ਵਿਸ਼ੇਸ਼
		ਘਰ ਦਾ ਪਤਾ ਜਾਂ ਹੋਰ ਸਥਾਨ	ਹਸਪਤਾਲ/ਸੰਸਥਾ ਦਾ ਨਾਮ				
9	10	11	12	13	14	15	16

6.5.4.3. Agriculture License

No. AL/KPT-1132

Dt. of Issue - 24-4-09
Valid upto - 23-4-12

FORM A 2
(Refer Clause B(3))
ACKNOWLEDGEMENT



1. Received from M/S Turna Agri. Centre, Near B...
Pajjiam Block - Kapurthala a complete memorandum of
Intimation alongwith Form O, fee of Rs. 1000/- by Challan/Token
bearing number 33471 dated 24-4-09

2. This acknowledgement shall be deemed to be the letter of
authorization entitling the applicant to carry on the business
as applied for a period of 3 years from the date of issue of
this Memo of acknowledgement unless suspended or revoked by
the competent authority.

Dated 24-4-09 Signature of Chief Agricultural Officer
Kapurthala Notified Authority

Renewals

dated _____ Signature of Notified Authority.


- ① IPL - Urea, DAP, MAP, NPK (20-20-20), SSP, MAP, Potassium Sulphate, TSP (Valid upto 6-10-09)
- ② Kay chemicals - 2m c sulphate (21% & 33%); Ferrous Sulphate 19% Fe (Valid upto 9-6-09)
- ③ G.SFC - Urea, DAP, NS, DAP (S.K.H.), ASP, NPK (12-32-16) (12-26-26) (Valid upto 29-8-11)
- ④ NFL - Urea, Urea (free content), Rhizobium, Azotobacter, PSB (Valid upto 16-6-10)

Additions

- ① G.N.V.C. - Urea, (20-20-0), CAN, DAP, NPK (19-19-19), MAP (12-61-0) NPK 0.5:3 (13-0-45) (Valid upto 30-3-11)
- ② Tata chemicals - Urea, DAP, MAP, Calcium nitrate, Potassium nitrate, Bentonite Sulphur 9% NPK (19-19-19) Di Sodium Tetrab. Borate Pentahydrate (Valid upto 17-3-10) Zinc Sulphate 21% & 33% Manuf. by Gupta Agrichem at Gairat Agri case Sangrur (Valid upto 30-3-11)
- ③ Deepak Tech Petrochem - NPK (0-0-50) (13-0-45), (12-61-0) (0-52-34) (19-19-19) MAP (Valid upto 24-9-10) Bentonite Sulphur 90% (Valid upto 11-6-10)

Chief Agricultural Officer
Kapurthala

- PTO -



M/s Turna Agro Centre
Near Bus Stand, Pajjian
Block - Kapurthala

No. AL/KPT-132
Valid upto - 23-4-12

Additions

- ① Bharat Agro Molecules - Zn 21% + 33%, FeSO₄-19%
Micro nutrient Mixture grade I, II, III (Valid upto 6-7-11) } Direct
- ② Bharat chemical Industries - FeSO₄-19%, Mang. Sulphate 30.5%, Copper Sulphate 24%
Zn EDTA-12%, FeSO₄-EDTA-12%, Sulphur 90% (Valid upto 4-12-11) } Direct
- ③ Tata chemicals - Wea, Wea(Neem), DAP, MOP, Cal. Nitrate, Bonto. Sulphur 90%
13-0-45, NPK 19-19-19, Boron 20%, Zinc 21% + 33%, FeSO₄-19%, SOP - 0-52-34
Zn EDTA-12%, Mang. Sulphate 9.6% (Valid upto 17-3-12) } Two M/s
Munjral Agro
Chemical &
Fertil
Kapurthala
- ④ RCF - Wea, DAP, MOP, NPK 15-15-15, 20-20-0, SSP-16% Bohac NPK 19-19-19, 13-0-45 (Valid upto 23-6-12)
- ⑤ GNVFC - Wea, N-Phos 20-20-0, CAN, DAP Wea (imp), (Valid upto 20-10-11)
- ⑥ Hindalco Ind. Ltd - DAP, NPK 12-32-16, 20-20-0 (Valid upto 22-5-12)
- ⑦ Deepak Fertil + Petrochem - MOP, 0-52-34, 0-0-50, 19-19-19, 12-61-0, 13-0-45, 12-44-13
Cal. Nitrate, Bonto. Sulphur 90% with Zn NPK 23-23-0, 24-24-0, Zn EDTA-12%
FeSO₄-EDTA-12% (Valid upto 24-4-13)
- ⑧ Gupta Agro Care Pvt Ltd - Zn 21% + 33%, Mang. Sulphate 30.5% (Valid upto 21-9-11)

Additions

- ⑨ NFL - Wea, Poul. Wea, DAP, MOP, CAN
(Valid upto 23-4-12) } Two M/s Dashmesh
Khad Store Talwandi
Chandharian
Chief Agricultural Officer
Kapurthala

Additions

- ⑩ NFL - Wea, Poul. Wea, DAP, MOP, Rhizobium, Azotobacter, PSB } Two M/s Munjal Agro Chemical
& Fertil KPT
(Valid upto 23-4-12)
- ⑪ GNVFC - Wea, NP(20-20-0), Cal Amm Nit. (EAN), DAP
- ⑫ Musarc India - DAP, Pot, Magnesium Sulphate
- ⑬ Gupta Agro care - ZnSO₄ 21% + 33%, Mang. Sulphate 30.5%
- ⑭ Green Star Fertil Pvt Ltd - DAP (18-46) DAP LITE (16-44)
- ⑮ IPL - Wea, DAP, MOP, TSP, CAN, Pot. schonite, NPS (16-20-0-13), 20-20-0-13
MAP LITE (18-44), DAP LITE (16-44) NPK 15-15-15, 16-16-16, Zn (Indoplast)
NPK (20-20-20), SSP-16%
- ⑯ Deepak Fertil + Petrochem - NPK 19-19-19, 13-0-45, 20-20-0, MOP, Zn 21% + 33%
Bonto. Sulphur 90%, Zn EDTA-12%, Mang. Sulphate 30.5% } Two M/s
Om Overseas
Phagwara
(Valid upto 23-4-12)
- ⑰ KPR Fertil Ltd - DAP (LITE) (16-44) DAP (18-46)

Chief Agricultural Officer
Kapurthala

6.6. Bill of Material

6.6.1. Form A: Bill of Material (System Software)

Below is the indicative bill of material for system software items. SI shall be required to provide all the System software & licenses as per the requirement of this RFP and shall be required to provide details & pricing of each individual item.

Sr.	Particular	Quantity*
I.	NMS Licenses	
II.	Upgrade of existing database licenses from SQL 2008 to 2012	
III.	Upgrade of existing OS licenses from Windows server 2008 to 2012	
IV.	Database – Latest version of Sequel 2012 with all necessary CALs/ licenses as per the hardware proposed by system integrator in line with the minimum specifications provided in the RFP.	
V.	antivirus Client licenses	
VI.	Any other	

The quantity of various items is to be proposed by the bidder

6.6.2. Form B: Bill of Material (Infrastructure at SDC)

Sl. No	Description of Item	Quantity**
1.	Web Servers	
2.	Application Servers	
3.	Database Servers	
4.	Load Balancer	
5.	Staging server*	
6.	Authentication server / Proxy Server / LDAP Server (with Redundancy)	
7.	Server (s), SAN storage, 5 KVA UPS, Rack, etc.	
8.	Storage Area Network (SAN)	
9.	SAN Switch	
10.	Tape Library	
11.	Firewall with IPS	
12.	Server Load balancer	
13.	Helpdesk & SLA monitoring Tool Hardware	
14.	Host based IPS for servers	
15.	5 kva UPS	
16.	Fireproof Safe for keeping minimum 100 backup tapes	

*Staging server can be used in virtualization environment for development & testing. SI should also consider Operating System licenses for virtualized environment.

**System Integrator is required to carry out the sizing and propose the quantity accordingly.

***For backup server, to be placed at Disaster recovery site, SI has to provide a suitable rack.

For each hardware item quoted under this bid, the SI needs to provide an unpriced BOM as part of the technical bid carrying atleast the following information in a table

- (i) Reference of the server/storage information in the Submitted Proposal (Please provide page number/section number/ volume)
- (ii) Services proposed to be hosted on the Server
- (iii) Quantity
- (iv) Make and Model
- (v) Year of Introduction
- (vi) Operating System along with version (if applicable)
- (vii) Processor and Number of Cores Offered (if applicable)
- (viii) Architecture (RISC/EPIC/CISC) (if applicable)
- (ix) RAM/HDD/LAN Ports/ HBA (as relevant)
- (x) Additional Information as required to indicate the compliance to the requirements in the RFP (ex, Capacity, Disk Space) (if applicable)

Notes:-

- For each individual item proposed under this bid, SI shall enclose hard copies of the original OEM datasheets. The datasheet should contain complete details of specifications as asked for in the RFP. Datasheets should be signed and stamped by the bidder.

6.6.3. Form C: Bill of Material (Infrastructure at Field Offices)

Sr.	Description of Item	Quantity
1.	Desktop	2250
2.	Laptop	20
3.	Digital camera with tripod stand	625
4.	Scanners	1385
5.	Network Laser Printer	1290
6.	Digital Signature (class 3)	790
7.	UPS (1 KVA) - Online	1500
8.	UPS (3 KVA) Online	207
9.	UPS 600 VA for Desktops	1420
10.	Rack (To accommodate Switch, Router, Modem & UPS with battery) – for the District/ Block offices	1500
11.	24 Port Switch	50
12.	16 port Switch	200
13.	8 port Switch	1250
14.	Router	1000
15.	Data Cards (with minimum 256 kbps speed)	20
16.	Table & Chairs	828

Sr.	Description of Item	Quantity
17.	Finger Print reader	625
18.	Digital Slate for Signature	625

Important Note for bidders:

- (i) It is mandatory to furnish complete technical specifications of the hardware & peripherals being offered, strictly as per the format, provided here. Correct technical information of the product being offered must be filled in.
- (ii) Filling the technical specifications/ information in the format using terms such as 'OK', 'Accepted', 'Noted', 'As given in Brochure/ Manual', 'Complied' is not acceptable. The offers not adhering to these guidelines are liable to be rejected.
- (iii) All relevant product information such as user manuals, technical specifications sheet etc. should be submitted along with the offer. Failure to submit this information along with the offer could result in disqualification of the bid.
- (iv) In case any technical variance is offered, the same must be specified under the "Deviation, if any" column.
- (v) For each item listed above, the bidders should propose only one product for all 20 districts and shall supply all the items of same make 7 model across all the locations..
- (vi) These specifications should be considered as the minimum to be fulfilled.
- (vii) SI shall be required to carry out an assessment of actual IT hardware requirement at the field offices. He shall be required to take an approval from PSeGS on the quantities of various items to be supplied, before the supply of the same. Payment shall be made as per actual supplied and signed off quantities by the District Nodal officer. During the contract period, PSeGS/ DeGS shall have the right to place order on the System Integrator for supply of extra quantities on the basis of unit prices provided under this bid.
- (viii) SI shall be required to place non-editable, non-removable stickers on each & every hardware item to be provided under this bid. The content of the sticker shall be communicated to the SI by PSeGS.

Please Note:

- PSeGS shall have all the right to reduce quantity of various items/ services to be provided by the System Integrator as part of this bid. The payment to the System Integrator shall be made on the basis of actual items provided/ Services rendered by the system integrator.
- If asked by PSeGS, SI shall supply the connectivity hardware items (like router) to the pilot districts/ State HQ also, at the unit prices quoted in the bid.

6.6.4. Minimum Technical Specification**6.6.4.1. Database Server**

Technical Specification	
Processor / CPU	2 No. of Quad Core processor, minimum 2.0 GHz clock speed or equivalent / subsequently better. The CPU should be of latest generation at the time of bidding i.e. Vendor should offer the highest clock speed and cache supported on the offered model with latest supported/ compatible server chipset.
Architecture	RISC / EPIC / X86 as per OEM architecture
Operating System	Latest version of windows server
System Software	Latest version of Sequel 2012
Main Memory	The system should be configured with minimum 128 GB RAM (ECC), scalable up-to 512 GB (ECC). Minimum 2 free slots for future expandable capability
Hard Disk	4X300 GB SAS 15K RPM SAS or better hot plug drives with RAID 1 with Disk Mirroring Features. Server Should have HDD bays for future scalability.
Industry Benchmark	Should have published benchmarks for TPC-c or SAP or SPEC available. If no published benchmark result for the offered server & processor is available then the performance offered by the server will be estimated by linear extrapolation of a published result on a higher server model or a lower server model (with the same processor). If the OEM does not have particular benchmark on a specified server, the OEM can use an Internal benchmark to build the correlation between a benchmark and the proposed Server. The same has to be given in the OEM's letterhead and signed by an authorized person
Clustering	Server should be configured to support for OS level clustering.
Network Interface	Dual port 10/100/1000 Mbps Ethernet Adapter, with no single point of failure
HBA	2 No. dual ported 8 Gbps Fibre Channel Adapter with external fiber ports for redundant connectivity to external storage.
Removable drive	One DVD-RW/CD-RW Combo drive per server.
Power Supply	Dual Redundant Power Supply with cooling fans
	All Items are to be Rack Mounted in Industry
Server Height	Standard 4U / 2U (Rack mount)
Hot Swap components	Hard Disk Drives, Drives, Power supplies and fans.
RAID	Integrated RAID-0, 1
Server Management	Firmware Update, Dynamic resource management & utilization capability, Real time System Monitoring
Warranty	3 years On-Site Comprehensive warranty and Maintenance

6.6.4.2. Other Server

Features	Specifications Required
CPU	2 No. of Quad Core processor, minimum 2.0 GHz clock speed or equivalent / subsequently better. The CPU should be of latest generation at the time of bidding i.e. Vendor should offer the highest clock speed and cache supported on the offered model with latest supported/ compatible server chipset
Chipset	Suitable Processor OEM motherboard/chipset
Architecture	RISC / EPIC / X86 as per OEM architecture
Operating System	In line with OS provided under Pilot implementation.
Memory	64 GB ECC DDR3-SDRAM DIMMs minimum 2 free slots for future expandable capability
Memory Expandability	Minimum 256 GB
Controllers	Integrated SAS Raid Controller with RAID 0, 1
Bays	Dual 2.5" SAS Hard Disk bays
Hard Disk Drives	Two 300 GB / Two 200 GB 2.5" SAS Hard Disk Drive hot swappable system disk" with mirroring using integrated RAID 0,1 on internal disks
Ethernet Adapter	1000BASE-T Gigabit Ethernet Adapter
SAN Connectivity	Should have redundant 4/8 Gbps Fibre Channel HBA
I/O Expansions	I/O expansion slot for up gradation of Ethernet Adapter or Infiniband
Form factor	Blade
System Management and Diagnostics	LCD / LED lights indicating failing component and on-board diagnostics (via on-board system management processor)
Software	Server Management software with the device drivers
OS Compatibility	Microsoft Windows Server Enterprise / Standard Edition (32 bit and 64 bit) Red Hat Enterprise Linux SUSE LINUX Enterprise Server Solaris

6.6.4.3. Backup server (For Disaster recovery site)

Features	Specifications Required
CPU	2 No. of Quad Core processor, minimum 2.0 GHz clock speed or equivalent / subsequently better. The CPU should be of latest generation at the time of bidding i.e. Vendor should offer the highest clock speed and cache supported on the offered model with latest supported/ compatible server chipset
Chipset	Suitable Processor OEM motherboard/chipset
Architecture	RISC / EPIC / X86 as per OEM architecture
Operating System	In line with OS provided under Pilot implementation.
Memory	64 GB ECC DDR3-SDRAM DIMMs minimum 2 free slots for future

Features	Specifications Required
	expandable capability
Memory Expandability	Minimum 256 GB
Controllers	Integrated SAS Raid Controller with RAID 0, 1
Bays	Dual 2.5" SAS Hard Disk bays
Hard Disk Drives	Two 200 GB 2.5" SAS Hard Disk Drive hot swappable system disk with mirroring using integrated RAID 0,1 on internal disks
Ethernet Adapter	1000BASE-T Gigabit Ethernet Adapter
SAN Connectivity	Should have redundant 4/8 Gbps Fibre Channel HBA
I/O Expansions	I/O expansion slot for up gradation of Ethernet Adapter or Infiniband
Form factor	Rack
System Management and Diagnostics	LCD / LED lights indicating failing component and on-board diagnostics (via on-board system management processor)
Software	Server Management software with the device drivers
OS Compatibility	Microsoft Windows Server Enterprise / Standard Edition (32 bit and 64 bit) Red Hat Enterprise Linux SUSE LINUX Enterprise Server Solaris

6.6.4.4. Blade Chassis

Slots	Solution to house at least 14 half height Blade Servers or 7 full height Blade Servers in smallest number of enclosures. Industry standard suitable for housing in Industry Standard Server Racks (Please refer to section 6.6.13 for rack specification).
OS Support	Other than proposed OS, The server should support flavours of Enterprise Windows/ Enterprise Linux Operating Systems"
	DVD RW can be internal or external, which can be shared by all the blades allowing remote installation of S/W and OS
	Two hot-plug, redundant 1Gbps Managed Ethernet module, with minimum 4 port copper switch uplink (to the external Ethernet at 10/100/1000 Mbps) and minimum 10 port embedded gigabit down link (which connects each blade server at 1Gbps). Module should be (Internal/external) having Layer 3 functionality - routing, filtering, traffic queuing etc.
	10 G Support on Chassis is required
	Pre-Failure Alerts on Hard disk drives, processors, memory
	Architecture should be redundant without compromising the performance
	Blade Chassis should not be populated more than 75% from day one. Support for Quad CPU and Dual CPU blades in the same enclosure

Management Module	System Management Port to allow simultaneous management access of multiple Blade Servers in the Chassis.
	GUI, console-based deployment server to set up multiple OS and application configurations
	Remote management should provide SSL encryption capabilities through internet
	Built-in KVM switch (Chassis should have provision of accommodating Optional redundant KVM switch) or virtual KVM feature over IP
	Dedicated management network port should have separate path for management
	Support heterogeneous environment: Xeon/AMD and CPU blades must be in same chassis with scope to run Win2008 Server, Enterprise Linux (having full-fledged support)
Power Modules	The enclosure should be populated fully with power supplies of the highest capacity available with the IA. Power supplies should support N+N or N+1 redundancy configuration
	Should offer choice of a single phase or 3 phase power subsystem for flexibility in connecting to datacentre power enabled with technologies for lower power consumption
	Guaranteeing complete availability even on failure of any 2 power units across the enclosures
Cooling	Each blade enclosure should have a cooling subsystem consisting of redundant hot pluggable fans or blowers enabled with technologies for improved power consumption and acoustics

6.6.4.5. Tape Library:

Features	Specifications Required
No of Drives	2 Expandable up-to 4 Drives within box or by adding expansion modules/Cascading
Drive Technology	LTO5 with upto 140 MB/s data transfer rate
No. of Slots	12 slots and expandable up to 24 slots by adding modules or cascading
Drive Interface	Fibre Channel, 8Gbps
Capacity	5 TB and expandable up-to 10 TB by adding modules or cascading
Performance	Native 500GB/hr per drive
Consumables	6 nos of LTO5 cartridges and 2 nos of Cleaning cartridges

6.6.4.6. San Storage

Technical Specification	
RAID Level	RAID Array supporting Raid Levels 0, 1, 0+1, 5, 10 or equivalent.
	The RAID Level should be Hardware based and should use dedicated Hardware for RAID Calculation.
Availability & Required Cache	Cache should be mirrored between Active-Active controllers on dedicated, redundant paths / links between the controllers. In case of power failure, the SAN array must be provided with cache protection mechanism to ensure no loss of data in cache by de- staging to disks, irrespective of duration of power outage, or for minimum 72 hrs. The Proposed SAN Array should be configured with at least 8GB usable data cache.
Reliability	The Proposed SAN Array should be configured with No Single Point of Failure Architecture with Dual Controllers for redundancy and should support hot plug and hot swap of components online (including controllers, disks, power supplies, cooling fans etc.). Should have continuous system monitoring and shall support remote diagnostics / error reporting feature. It should also allow the recovery of data in transit in the event of failure.
Front End Connectivity	SAN Storage should be configured with at least 4 numbers of 4Gbps Fibre channel (FC) front end ports per controller (i.e. a total of at least 8 x 4Gbps FC front end ports across Dual controllers) for front-end host connectivity.
Back End Connectivity	<i>SAN Storage should be configured with at least 4 numbers of 6Gbps SAS back end ports per controller (i.e. a total of at least 8 x 6Gbps SAS back end ports across Dual controllers) for back-end disk-shelf connectivity."</i>
Disk Drives	<i>The SAN Array should be able to support a minimum of 95 disks in the array supplied from Day One and should be expandable to 140 disks in future with data in place upgrade. The SAN Array should support intermixing of SAS / FC & NL-SAS / FATA/SATA-II Disks of various capacities and speeds. It should support dual ported SAS disks of 146GB /200 GB / 300GB / 400GB or higher with speeds of 10K rpm & 15K rpm</i>
Required Disk space	The Proposed SAN Array should be configured with minimum 5TB Usable Capacity. Is required on RAID 10 (Strip and Mirror Everywhere) with 300GB, 15K RPM SAS / FC HDD (min 4Gbps, Dual Ported Drives) and with 1 hot spare per disk tray.
Self-Tuning	The Storage System should provide ease of use capabilities – customer replaceable components, including non-disruptive replacement of disk drives, power supplies, fans and SFP optical transceivers.
Volume Expansion	The storage system should support dynamic online LUN/volume expansion and shrink through striping/ concatenation Or any equivalent means / feature, which can achieve similar functionality with supporting whitepaper validation documents from third party agencies
RAID Level Mixing	It should support a mix and match of RAID levels (including RAID 0, 1, 1/0, 5) within the same storage array serviced by a pair of controllers.

Technical Specification	
	If any of the above features are not supported by the bidder/OEM, then kindly propose equivalent features, with supporting whitepaper validation documents from third party agencies
Volume Expansion	The SAN Management software should preferably be array- based, easy to use with secure web-based GUI administration interface for configuration, storage management.
Sparing	Should have a pool of Global Hot Spare disks for the entire array, so that if a disk fails anywhere in the array, global hot spares can be invoked from the pool to reduce the risk of data loss.
OS support	Support for industry-leading Operating System platforms including but not limited to various flavours of LINUX / Microsoft Windows / UNIX etc. As well as various High Availability cluster solutions. The detailed interoperability matrix should be available on the public domain.
IOPS	I/O performance should be greater than or at least equal to 150,000 IOPS from Cache or 30,000 disk IOPS and should have a sustained sequential throughput of minimum 2000MB/sec
Snapshots/ Full Copies	The array should provide for functionality for pointer based snapshot copies (which require a fraction of the space) as well as full physical copies. It should support Writeable space optimized snapshots.
Performance Monitoring	The storage should be provided with storage performance monitoring software. The performance monitoring software should provide graphical view of the through put, iops and other performance by host or by controllers
Advance functions	The storage should be provided with thin provisioning feature quality of service and SSD caching or tiering software should be provided

6.6.4.7. SAN Switch

Technical Specification
Minimum 16 Active ports (each with minimum port speed 8Gbps)
Should have at least 4 numbers of 1Gbps ports for SAN extension over WAN
Switch shall support POST and online/offline diagnostics
All cable and accessories for connecting Servers /Devices to SAN
Should have capability of port trunking.
Should have optical transceivers for short wave / long wave
Should have Fans and power supplies
Should have GUI based management software for administration and configuration
Should be possible to configure the switches based on threshold values for temperature fan status.
Should support zoning configuration, virtual SAN/ Virtual Fabric
Should support fabric routing to enable cross fabric connectivity
All other necessary fibre cables and racking accessory should be supplied
Should support RADIUS authentication or SSH

6.6.4.8. Desktop Computers

Item	Description
Processor	Intel Pentium or AMD Athlon; Dual Core Processor; min 2.9 GHz
Motherboard	OEM Motherboard
Chipset	Latest Generation compatible chipset to the supplied CPU
RAM	Memory 2GB (1x2GB) expandable to 8GB Non-ECC DDR3 1333MHz SDRAM Memory, minimum Two DIMM slots
Hard Disk Drive & controller	HDD 80 GB 7200 RPM 3.5" SATA Hard Drive
Optical Drive	Optical Drive 16X Max DVD R/ CD-R
Graphics	Integrated Graphics
Audio	High Definition Audio Card
Ethernet	NIC 10/100/1000
Slots	4 PCI / PCI Express slots, VGA (1), USB 2.0 (6+2)
Ports	Rear I/O: (6) USB 2.0 ports, (1) serial port, (1) RJ-45, (1) VGA, (1) line out, (1) mic in, Front I/O: (2) USB 2.0 ports
Power Supply	250 Watt ATX with Energy star 5.0
Keyboard	USB 104 keys keyboard (Same make as PC) with bi-lingual keys (English and local language of the State (i.e. Punjabi)) compliant to Enhanced Inscript Keyboard based on Unicode version 6.0 or later."
Monitor	18.5" LCD Monitor , Maximum resolution - 1366 x 768; Response time (typical)- 5ms ; TCO 5 certification for Monitor;"
Mouse	USB 2 Button Optical Scroll Mouse (Same make as PC)
Operating System	Preloaded Genuine Windows(R) 7 Professional SP1 (English) or above with updates / patches over the period of 3 years
Office suite	"Preloaded office suite with Word Processing, Spreadsheet & Presentation preparation capability"
Compliance And Certification	As per industry standard for PC and energy star for Monitor
Drivers for different Operating systems	Recovery CD to be provided in media along with PC

6.6.4.9. Laptop

Features	Specifications
Processor	Intel Pentium or AMD APU; Dual Core Processor; min 2.0 GHz
Chipset	Latest Generation compatible chipset to the supplied CPU
System Memory	System Memory 2GB Up to 8GB supported, 1333MHz Dual Channel DDR3, 2 DIMM slots
Graphics	Integrated Graphics
Hard Drive	Primary Storage Options 320GB 7200RPM SATA Hard Drive (Partially protects)

Features	Specifications
	HDD against system drops)
Optical Drive	Optical Drive 8X or above DVD+/-RW with double-layer DVD+/-R write capability
Display	Display15.0" High Definition Wide LED Anti-Glare Display (1366x 768)
Audio/Visual	SRS Premium Sound™ Integrated stereo speakers Integrated microphone (dual microphone array when equipped with optional HD webcam) Stereo headphone/line out /Stereo microphone in Optional 720p HD webcam
Communications	Gigabit Ethernet network; WWAN 3G supported(optional)
Integrated Wireless	Wireless LAN: 802.11b/g/n and Bluetooth (BT V3.0)
Keyboard	Spill-resistant keyboard (minimum 86 keys) with bi-lingual keys (English and local language of the State (i.e. Punjabi)) compliant to Enhanced Inscript Keyboard based on Unicode version 6.0 or later."
Pointing Device	Touchpad with gestures support, on/off button with LED indicator, two-way scroll, two pick buttons
Battery	Battery Options 6-cell (47WHr) Lithium Ion battery integrated with optional long life cycle battery
Interfaces /Ports	Media Card Reader - One (1) VGA - One(1) HDMI- One(1) Stereo microphone in -One(1) Stereo headphone/line out -One(1) Power connector -One(1) RJ-45/Ethernet -One(1) USB 2.0- three (3) LED status indicators- Nine(9)
Operating System	Preloaded Windows(R) 7 Professional SP1 (English) or above with updates / patches over the period of 3 Years
Office suite	Latest Version of MS office Professional available at the time of Supply."
Anti-virus	Preloaded (licensed version of Antivirus with 3 years validity)
Drivers for different Operating systems	Drivers should be freely available on OEM's web site and should be supplied in media along with PC

6.6.4.10. Server Load Balancer

Features	Specifications
Ethernet ports	Minimum 4 10/100/1000 mbps Ethernet ports
Memory	Minimum 2 GB upgradable to 4 GB
Throughput	Minimum of 1 Gbps throughput upgradable to 2 Gbps
SSL throughput & connections	Minimum of 1 Gbps SSL throughput ☐ Minimum of 5000 SSL connections scalable to 7500 SSL connections
Load Balancing Mechanism	Cyclic, Hash, Least numbers of users o Weighted Cyclic, Least Amount of Traffic o Round robin, weighted round robin, response time, shortest response etc.
Redundancy Features	o Supports Active-Active and Active-Standby Redundancy

Features	Specifications
	<ul style="list-style-type: none"> ○ Segmentation / Virtualization support along with resource allocation
Server Load Balancing Features	<ul style="list-style-type: none"> ○ Server and Client process coexist ○ UDP Stateless ○ Service Failover ○ Backup/Overflow ○ Direct Server Return ○ Client NAT ○ Port Multiplexing-Virtual Ports to Real Ports Mapping ○ DNS Load Balancing
Server Load Balancing Features	<ul style="list-style-type: none"> ○ Load Balancing Applications ○ Application/ Web Server, MMS, RTSP, Streaming Media ○ DNS, FTP- ACTIVE & PASSIVE, RSH, ○ LDAP, RADIUS
Management options	<ul style="list-style-type: none"> ○ Secure Web Based Management ○ SSH ○ TELNET ○ SNMP v1, 2, 3 Based GUI ○ Command Line
Others	Content Intelligent SLB
	HTTP Header Super Farm

6.6.4.11. Network Laser Printer

Features	Specifications
Print speed, black	25 ppm
Print resolution, black	1200 x 1200 dpi
Print technology	Laser
Network Port	Ethernet
Monthly duty cycle	18000
Memory	32 MB or higher
Duplex printing (printing on both sides of paper)	Automatic (standard)
Media sizes, standard	Letter, legal, executive, postcards, envelopes
Media sizes, custom	250-sheet input tray: 5.8 x 8.27 to 8.5 x 14 in; priority feed slot: 3 x 5 to 8.5 x 14 in
Interfaces	Hi-Speed USB 2.0 port,
Media types	Paper (laser, plain, photo, rough, vellum), envelopes, labels, cardstock, transparencies, postcards
Operating systems support	Windows, Linux

Features	Specifications
Required	
Accessories	With All the standard accessories (USB cable , Driver CD ,Utility software ,Cat5/6 UTP patch cable) & original pre-filled toner

6.6.4.12. Scanner

Features	Specifications
Type	Legal Size Flatbed
Speed	20 PPM
Scan technology	Charge Coupled Device (CCD)
Resolution	Minimum 600 DPI
Bit Depth	24 bit
Duty Cycle	Cycle Upto 800 pages/ day
Paper Handling	Inbuilt ADF(50 Page)
Paper Size	Max Scan Size Min. 8.5X11.7" for A4, 8.5 X 14" for Legal (Flatbed)
Scan File Formats	BMP, JPEG, GIF, TIFF, TIFF compressed, PNG, PDF, JPG, RTF, TXT, UNICODE, HTM, DOC and other common formats
Interfaces	USB 2.0 port,
Operating systems support Required	Windows, Linux
Accessories	With All the standard accessories (Drivers/ Software Yes (Linux, MS-Windows XP/ Vista/ 7), OEM Scanning Software

6.6.4.13. Internal Firewall with IPS

Features	Specifications
General	The Firewall should be Hardware based, Reliable, purpose-built security appliance with hardened operating system that eliminates the security risks associated with general-purpose operating systems
Ports	The proposed appliance should have minimum 12 x 10/100/1000 Gigabit Ethernet interfaces, 8 x GbE SFP slots and 2 x 10GbE SFP+ interfaces. The appliance should have additional 2 x 10/100/1000 GE interfaces for Management."
Memory	Minimum 2 GB upgradable to 4 GB
Throughput	Firewall Throughput (1518 / 512 / 64 byte UDP packets) should be 20 / 20 / 20 Gbps. Firewall should have 3DES IPsec throughput of 8 Gbps Firewall Throughput (Packets Per Second) should be 31 Mpps
Connections	Firewall should support 10000 site-to-site VPN Tunnels. Firewall should support 190,000 new sessions per second Firewall should support 7 Million concurrent sessions
Latency	Firewall Latency (64 byte UDP packets) should be 6 μ s
Security & other Features	The administrator authentication to be facilitated by local database, PKI & remote services such as Radius, LDAP and TACAS+ with option of 2 factor

Features	Specifications
	<p>authentication.</p> <p>Shall be able to operate on either Transparent (bridge) mode to minimize interruption to existing network infrastructure or NAT/Route mode. Both modes can also be available concurrently using Virtual Contexts.</p> <p>The physical interface shall be capable of link aggregation, otherwise known as the IEEE 802.3ad standard, allows the grouping of interfaces into a larger bandwidth 'trunk'. It also allows for high availability (HA) by automatically redirecting traffic from a failed link in a trunk to the remaining links in that trunk.</p> <p>Shall be able to operate as a Protocol Independent Multicast (PIM) version 2 router.</p>
Certification	<p>The firewall shall belong to product family which minimally attain Internet Computer Security Association (ICSA) Firewall Product Criteria 4.1 Certification/ EAL 4 Certified/ Approved Protection Profile for that product category at http://www.niap-ccevs.org</p>
Intrusion Prevention System	<p>The Firewall Appliance should have integrated IPS functionality IPS throughput should be 6 Gbps.</p> <p>The IPS system shall have at least 6,000 signatures</p> <p>The IPS detection methodologies shall consist of Signature based detection using real time updated database & Anomaly based detection that is based on thresholds</p> <p>IPS should have option of automatic download of signatures not relying on any third party updates.</p> <p>IPS should perform stateful packet inspection</p> <p>IPS should have inbuilt Fail-open hardware bypass for 2 pairs of 10/100/1000 interfaces</p> <p>IPS solution should have capability to protect against Denial of Service (DOS) and DDOS attacks. Should have flexibility to configure threshold values for each of the Anomaly.</p> <p>IPS signatures should have a configurable actions like terminate a TCP session by issuing TCP Reset packets to each end of the connection, or silently drop traffic in addition to sending an alert and logging the incident</p>
High Availability	<p>Shall have built-in high availability (HA) features without extra cost/license or hardware component</p> <p>The device shall support stateful session maintenance in the event of a fail-over to a standby unit.</p> <p>High Availability feature must be supported for either NAT/Route or Transparent mode</p> <p>The proposed system shall support multiple heartbeat links</p> <p>High Availability Configurations should support Active/Active, Active/ Passive & Clustering</p>
Reporting	<p>Should provide logs, analysis, and reports and deliver increased knowledge of security events throughout the network for security event analysis, forensic research and reporting.</p>

6.6.4.14. HIPS Specifications

Specifications
Should be a complete datacentre and virtualization aware solution that provide advanced protection for systems from virtual servers to physical, virtual or cloud server, or a combination of the environment can be achieved.
Should be supported on multiple operating systems: Microsoft Windows, Solaris , Red Hat Enterprise & Suse Linux, etc
In the virtualized environment, Should have an integration with the hypervisor to achieve an protection such as Antimalware, IDS/IPS, Firewall and monitor Integrity changes for all the systems/ guest VMs running in the virtualization environment. In the Physical environment it should be able to provide protection such as Antimalware real time, IDS/IPS, Firewall, Integrity changes, and Inspection of system critical logs for all the systems and should be able to achieve with the single Agent.
Should have single management console and provide Prevention and Monitoring support for all the operating systems in the heterogeneous environment.
Should provide automated, real-time intrusion detection and protection by analysing events, operating system logs and inbound/outbound network traffic on enterprise servers.
Should employ full, seven-layer, state-based protocol decoding and analysis. Analyses all packets to and from the server for and propagation. To detect and prevent attacks, both known and unknown intrusion attempts. Should prevent the following:
o Prevents the delivery and installation of kernel-level Root kits.
o Prevents cross-site scripting (XSS) attacks.
o Prevents SQL injection attacks.
o Prevents DOS, DDOS, worm, botnet and Trojan attacks.
o Prevent Buffer overflow attacks
o Decodes backdoor communications and protocols.
o Inspect and block attacks that happen over SSL (HTTP & HTTPS)
Should have rules based broad protection, and low-level insight, for servers and end-user systems. For operating systems and applications, the rules limit variations of elements of traffic, limiting the ability of attackers to investigate possible attack vectors since many attacks are based on exceeding expected characteristics..
Should have Application Control rules provide increased visibility into, or control over, the applications that are accessing the network. These rules will be used to identify malicious software accessing the network and provide insight into suspicious activities such as allowed protocols over unexpected ports (FTP traffic on a mail server, HTTP traffic on an unexpected server, or SSH traffic over SSL, etc.).
Detailed events data to provide valuable information, including the source of the attack, the time, and what the potential intruder was attempting to exploit, shall be logged
Should be capable of blocking and detecting of IPv6 attacks.
Should work in detect only mode and prevent mode.
Should support creation of custom rule and policy inheritance exception capabilities.
The solution should allow to block based on thresholds

Specifications

Should have capability to define different rules to different network interfaces and filter traffic based on source and destination IP address, port, MAC address, etc.

Should have detection capability of reconnaissance activities such as port scans and also detect protocol violations of standard protocols

Should provide policy inheritance exception capabilities with the ability to lock computer (prevent all communication) except with management server.

Should be capable of monitoring critical operating system and application elements (files, directories, and registry keys) to detect suspicious behavior, such as modifications, or changes in ownership or permissions. Also monitor System Services, Installed Programs and Running Processes for any changes

Identifies and alerts on file activity, including file additions, deletions, content changes, and ownership changes.

Encompasses a wide array of built-in alerting, blocking, and logging responses for each event. List all available responses.

An auditable reporting should generate within the solution, along with alert generations, and automated report creation and delivery.

Should have the capability to notify an administrator if any particular log is collected more than a predefined number of times in a set time interval. For example - if three unsuccessful login events happen in less than 60 seconds. These alerts should show up on Central Administration console and should be E Mailed to the Administrator. The capability to forward these events to a SNMP manager is also important

Should work in real-time & able to support various log types like, syslog, Windows events, IIS , apache,nmap,mysql_log, postgresql_log,snort,djb-multilog, squid, single log text file

Should have central management server working in HA as Active\Passive. Also supports policy configuration and one-touch, global policy roll-out for policy changes and application.

Agent installation methods should support manual local installation, packaging with third party software distribution systems and distribution through Active Directory. No restart should be required once the agent is installed.

Deployment of policy should not require any restart of services or systems and also be affective in the online\offline mode

Should have comprehensive Role Based Access Control features including controlling who has access to what areas of the solution and who can do what within the application

Solution should be minimum of EAL certified

Should be able to generate detailed and summary reports. Reports can be scheduled to be automatically delivered to the administrator via email.

6.6.4.15. UPS 5 KVA

Sr.	Feature	Specification (Minimum Required)
1.	Technology	True On Line UPS with double conversion technology Rectifier and inverter should be based on IGBT
2.	Power Rating Input	5000 VA / 4000 W
3.	Voltage Range	160 VAC – 300 VAC @ 100% Load, 110 VAC – 300 VAC @ 50% Load
4.	Frequency	40 Hz ~ 70 Hz
5.	Power Factor	≥ 0.95
	Output	
6.	Voltage Range	220/230/240 VAC +/- 3%
7.	Voltage Distortion	≤ 3% (Linear Load) ≤ 6% (non Linear Load)
8.	Frequency	47.5 ~ 52.5 Hz
9.	Power Factor	0.8
10.	Crest Factor	3:1
	Inverter Overload	
11.	Transient Response	Less or equal to 3% for 100% nonlinear load (Battery mode)
	Battery	
12.	Type	Sealed Maintenance Free, Valve Regulated Lead Acid
13.	Battery cell rating	Battery cell of 12V
14.	Rated Voltage	Minimum 180 VDC
15.	Backup Time	60 min 8000 VAH;
16.	Protection	Inbuilt protection for surge suppression and EMI/RFI filter provided as well as The unit shall have Surge Current Capacity of min. 10kA with two mode of protection & <0.5 ns Response time. UPS shall be provided with only externally connected SPD as per IEEE Standard 1100-2005
	Environmental and Other	
17.	Audible Noise	Less than 45dB at 1 meter
18.	Operating temp & Humidity	20 – 90%RH @ 0 – 40°C (non condensing)
19.	LCD Display	UPS Status, Load level, Battery level, Input / Output voltage, Discharge Timer & Fault conditions
	Management	
20.	SMART RS 232	Supports Windows, Novell, Linux and FreeBSD
21.	SNMP	Power Management from SNMP manager and web browser option should be present
22.	Credentials	Manufacturer Should be ISO 9001:2000 certified Manufacturer Should be ISO 14001 certified

For all type of UPSes,

- The total number of batteries offered should be clearly mentioned.
- Voltage of each battery offered should be clearly mentioned.
- Ampere-Hour rating of each battery offered should be clearly mentioned.
- Total Volt-Ampere-Hour rating of the Battery Bank Offered should be clearly mentioned

6.6.4.16. UPS 3 KVA

Sr.	Feature	Specification (Minimum Required)
1.	Technology	True On Line UPS with double conversion technology
		Rectifier and inverter should be based on IGBT
2.	Power Rating Input	3000 VA / 2400 W
3.	Voltage Range	160 VAC – 300 VAC @ 100% Load, 110 VAC – 300 VAC @ 50% Load
4.	Frequency	40 Hz ~ 70 Hz
5.	Power Factor	≥ 0.95
	Output	
6.	Voltage Range	220/230/240 VAC +/- 3%
7.	Voltage Distortion	≤ 3% (Linear Load) ≤ 6% (non Linear Load)
8.	Frequency	47.5 ~ 52.5 Hz
9.	Power Factor	0.8
10.	Crest Factor	3:1
11.	Inverter Overload	
12.	Transient Response	Less or equal to 3% for 100% nonlinear load (Battery mode)
	Battery	
13.	Type	Sealed Maintenance Free, Valve Regulated Lead Acid
14.	Battery cells rating	Battery cells of 12V
15.	Rated Voltage	Minimum 96 VDC
16.	Backup Time	30 min VAH 2496
17.	Protection	Inbuilt protection for surge suppression and EMI/RFI filter provided as well as The unit shall have Surge Current Capacity of min. 10kA with two mode of protection & <0.5 ns Response time. UPS shall be provided with only externally connected SPD as per IEEE Standard 1100-2005
	Environmental and Other	
18.	Audible Noise	Less than 45dB at 1 meter
19.	Operating temp & Humidity	20 – 90%RH @ 0 – 40°C (non condensing)
20.	LCD Display	UPS Status, Load level, Battery level, Input / Output voltage, Discharge Timer & Fault conditions
	Management	
21.	SMART RS 232	Supports Windows, Novell, Linux and FreeBSD
22.	SNMP	Power Management from SNMP manager and web browser

Sr.	Feature	Specification (Minimum Required)
		option should be present
23.	Credentials	Manufacturer Should be ISO 9001:2000 certified Manufacturer Should be ISO 14001 certified

6.6.4.17. UPS 1 KVA

Sr.	Feature	Specification (Minimum Required)
1.	Technology	True On Line UPS with double conversion technology
		Rectifier and inverter should be based on IGBT
2.	Power Rating Input	1000 VA / 800 W
3.	Voltage Range	160 VAC – 300 VAC @ 100% Load, 110 VAC – 300 VAC @ 50% Load
4.	Frequency	40 Hz ~ 70 Hz
5.	Power Factor	≥ 0.95
	Output	
6.	Voltage Range	220/230/240 VAC +/- 3%
7.	Voltage Distortion	≤ 3% (Linear Load) ≤ 6% (non Linear Load)
8.	Frequency	47.5 ~ 52.5 Hz
9.	Power Factor	0.8
10.	Crest Factor	3:1
	Inverter Overload	
11.	Transient Response	Less or equal to 3% for 100% nonlinear load (Battery mode)
	Battery	
12.	Type	Sealed Maintenance Free, Valve Regulated Lead Acid
13.	Battery cell rating	Battery cells of 12V
14.	Rated Voltage	36 VDC
15.	Backup Time	30 min VAH 936 ;
16.	Protection	Inbuilt protection for surge suppression and EMI/RFI filter provided as well as The unit shall have Surge Current Capacity of min. 10kA with two mode of protection & <0.5 ns Response time. UPS shall be provided with only externally connected SPD as per IEEE Standard 1100-2005
	Environmental and Other	
17.	Audible Noise	Less than 45dB at 1 meter
18.	Operating temp & Humidity	20 – 90%RH @ 0 – 40°C (non condensing)
19.	LCD Display	UPS Status, Load level, Battery level, Input / Output voltage, Discharge Timer & Fault conditions
	Management	
20.	SMART RS 232	Supports Windows, Novell, Linux and FreeBSD
21.	SNMP	Power Management from SNMP manager and web browser option should be present

Sr.	Feature	Specification (Minimum Required)
22.	Credentials	Manufacturer Should be ISO 9001:2000 certified Manufacturer Should be ISO 14001 certified

6.6.4.18. UPS 600 VA

	Features	Specifications
1.	Capacity	600 VA line interactive
2.	Technology	DSP based PWE using Mosfet / IGBT
3.	Certifications	CE or Equivalent Certificate. Quality standards ISO 001;2000;2008/IO 14001
	AC Input	
4.	Voltage	160 VAC – 300 VAC @ 100% Load, 110 VAC – 300 VAC @ 50% Load
5.	Frequency	50 Hz
	AC OUT PUT	
6.	Voltage Window	220/230/240 VAC +/- 3%
7.	Frequency	47.5 ~ 52.5 Hz
8.	Voltage regulation	230+/- 3 % (on Battery)
9.	Frequency	50 hz
10.	Load Power Factor	0.8 (lag) or better
11.	Output Load capacity	600 VA
12.	Overload capacity	At 120% load minimum 1 Min
13.	Waveform	Sinewave/ Modified sinewave
14.	Total Harmonic Distortion	< 8 %
15.	Overall Efficiency	85%
16.	Storage / Operating Temp.	0 – 45 °C
17.	BATTERY	Sealed Maintenance Free (VRLA) 30 Min backup on full load
18.	Battery Bank Recharge time	2-8 Hrs (to 90 % capacity after discharge into full Load)
19.	Suggested Make of battery	Reputed Brands
	PROTECTIONS	
20.	Short Circuit	Electronic current limit on inverter mode/ MCB protection on Mains mode
21.	Surge / Spikes	Through Line Filters
22.	DC under voltage	Yes
23.	Overload	Yes
24.	DISPLAY	LCD / LED Display (UPS Status, Load Status, Battery Status/ Low Battery)
25.	ALARMS	Mains failure, Fault conditions, Low battery, Overload
26.	OTHER FEATURE	Generator Compatibility should be provided.
27.	Warranty, AC Output	

	Features	Specifications
	SOCKETS &	
28.	Input Cable	Input Cable of at least 1 meter

6.6.4.19. 24 port switch

Features	Specifications
Throughput	Min 50 Gbps & 40 Mpps forwarding rate
Data Transfer Rate	Non Blocking, Wirespeed Architecture
Number of Ports (24 Port Switch)	24 * 10/100/1000 Mbps port Uplink Port: should have 4 SFP Based uplink ports
Standards	IEEE 802.1D IEEE 802.1p IEEE 802.1Q IEEE 802.1s IEEE 802.1w IEEE 802.1x IEEE 802.1ab IEEE 802.3, 802.3ad, 802.3u, 802.3ab, 802.3z
Twisted-pair Rx Reverse Polarity	Auto-correction for each port
MAC Address	Should have atleast 8K MACs & 255 active VLANs
RAM	Minimum 64 MB or higher
Power Supply	100 - 240 VAC, 50/60 Hz
Security	Should support a) 802.1x b) SSH v1, v2
Management	Should have a. IPv6 management capability b. SNMP v1, v2, v3 c. RMON d. RADIUS e. CLI via console f. Web interface g. Provision of software and firmware upgrades with latest version releases through admin login

6.6.4.20. 16 Port Switch

Features	Specifications
Throughput	Min 12.8 Gbps & 6.6 Mpps forwarding rate
Data Transfer Rate	Non Blocking, Wirespeed Architecture
Number of Ports (16 Port Switch)	16 port 10/100/1000 ports Shall support 2 Shared SFP slots to load 1000T/ 1000SX/ 1000LX/ 1000LHX/ 1000ZX/ 100FX fibre ports
Standards	IEEE 802.1D IEEE 802.1p IEEE 802.1Q IEEE 802.1s IEEE 802.1w IEEE 802.1x IEEE 802.1ab IEEE 802.3, 802.3ad, 802.3u, 802.3ab, 802.3z
Twisted-pair Rx Reverse Polarity	Auto-correction for each port
MAC Address	Should have atleast 8K MACs & 255 active VLANs
RAM	Minimum 64 MB or higher
Power Supply	100 - 240 VAC, 50/60 Hz
Security	Should support a) 802.1x b) SSH v1, v2
Management	Should have a. IPv6 management capability b. SNMP v1, v2, v3 c. RMON d. RADIUS e. CLI via console f. Web interface g. Provision of software and firmware upgrades with latest version releases through admin login

6.6.4.21. 8 Port Switch

Features	Specifications
Throughput	Min 5.6 Gbps
Data Transfer Rate	Non Blocking, Wirespeed Architecture
Number of Ports (8 Port Switch)	Shall have 8-port 10/100/1000 TX Shall have 1 fixed 1000 T Ports shared with 1 Mini GBIC ports. The Mini GBIC port shall support fibre modules & SFP slot should support 100 / 1000 based fibre transceivers.
Standards	IEEE 802.1D IEEE 802.1p IEEE 802.1Q IEEE 802.1s IEEE 802.1w IEEE 802.1x IEEE 802.1ab IEEE 802.3, 802.3ad, 802.3u, 802.3ab, 802.3z
Twisted-pair Reverse Polarity	Rx Auto-correction for each port
MAC Address	Should have atleast 8K MACs & 255 active VLANs
RAM	Minimum 64 MB or higher
Power Supply	100 - 240 VAC, 50/60 Hz
Security	Should support a) 802.1x b) SSH v1, v2
Management	Should have a. IPv6 management capability b. SNMP v1, v2, v3 c. RMON d. RADIUS e. CLI via console f. Web interface g. Provision of software and firmware upgrades with latest version releases through admin login

6.6.4.22. Router

Features	Specifications
Architecture	a) Should be chassis based & modular architecture for scalability. b) Should have support for IPSEC VPN. c) Should have minimum of 256MB of RAM and 32 MB of Flash Memory d) Should have support 70 Kpps of performance with ACL+ QoS and NAT enabled for both IPv4 & IPv6

Features	Specifications
Interface	a) 4 x 10/100 Base interface with support for both LAN & WAN protocols b) At least 1 free slots for future (slot should support both · V.35 (2 Mbps) interface including necessary cables , 10/100/1000 Ethernet Base interfaces.
Performance	a) Should support high performance traffic forwarding b) Should support variety of interfaces like V.35 Sync Serial (2 Mbps), E1, ADSL for remote office aggregation c) Should support 2G/ 3G USB modem for connectivity or support external 3G modem d) Should have USB 2.0 ports for storing OS images
High Availability	a) Should support redundant connection to LAN b) Should support VRRP or equivalent
Protocols	a) Should support Routing protocols like RIP, OSPF, BGP, IS-IS , Telnet , MPLS b) Multicast routing protocols support : IGMPv1,v2, v3), PIMSM, PIM-SSM and PIM-DM c) Should have full IPv6 features from day 1.
QoS Features	a) Classification and Marking: Policy based routing, IEEE 802.1p b) Congestion Management: WRED, Priority queuing, Class based queuing c) Traffic Conditioning: Committed Access Rate/Rate limiting d) Per VLAN QoS. Time Based Shaping and Policing for QoS e) Port mirroring
Security Features	a) Support for SNMPv3 authentication, SSHv2 b) AAA support using Radius and/or TACACS+ c) Support for PAP and CHAP authentication for P-to-P links d) Multiple level authentications. e) Time based & Dynamic ACLs f) IEEE 802.1x support for MAC address authentication g) IPSec/ 3DeS encryption support h) EAL certification
Management	a) Shall have support for Web based management, CLI, Telnet and SNMPv3 b) Shall support Secure Shell for secure connectivity.
Certification	(a) FCC (b) Safety EMI/EMC
Power	AC 200 – 240V

6.6.4.23. Finger Print Reader

Feature	Specification
Sensor Type	Optoelectronic
Minimum Platen Area	15.24 mm x 20.32 mm
Resolution	Minimum 500 PPI / DPI or more
Image grey scale	256 Gray Scale
Scanning time	> 0.01Sec.

Feature	Specification
Distortion rate	< 1%
Computer interface	USB2.0 , USB Powered
Operating Temp	0 – 50 Degree C
Environmental Humidity	Up to 90%
OS Support	Window XP / Vista / 7 / Linux
Other Specification	Should be portable enough to carry infield operations
	No external power supply should be required to operate
	Should comply to AFIS/DIT standards
	The device offered should be STQC certified

6.6.4.24. Rack

Specifications
Wall mount
Minimum Powder coated steel Body with front door of glass.
Completely covered & have security locks.
Proper ventilated with One Fan, One Cable Manager, Power Distribution Unit of 6 No. (5 and 5 Amp) Sockets with surge protection, Mounting Accessories
Fitted with Copper Strip for earthing the equipment's.

6.6.4.25. Antivirus

Specifications
The Solutions should be providing flexibility of deploying both in Virtualization and physical environment.
The antivirus solution should have enhanced protection from Network virus/Worms, Trojans, Key loggers, Intrusions, Conceivably harmful websites/Phishing sites, Malicious behaviour, data loss, web based threats, root kits, mixed threats, real-time compressed executable files, spyware/gray ware etc.
Should have Compressed File Detection and Repair and should also be able to reduce the risk of virus/malware entering the network by blocking files with real-time compressed executable files.
Should have Unknown Virus Detection & Repair. Should have behavioural & Heuristic scanning to protect from unknown viruses.
Must be capable of cleaning viruses/malware even without the availability of virus clean-up components. Using a detected file as basis, it should be able to determine if the detected file has a corresponding process/service in memory and a registry entry, and then remove them altogether
Must have the capability to detect and clean Virus and also perform different Scan Actions based on the virus type (Trojan/ Worm, Joke, Hoax, Virus, other)
Should have buffer overflow protection integrated with AV scan engine for protection from threats/exploits that uses buffer overflow vulnerability regardless of presence of signature / OS patches

Specifications
Should have web based management console to give administrators transparent access to all clients and servers on the network and also provide automatic deployment of security policies, AV signatures, and software updates on every client and server.
Should support LDAP integration and also have security compliance to leverage Microsoft Active Directory services to determine the security status of the computers in the network and also have logical group based on IP addresses (Subnets).
Establish separate configuration for internally versus externally located machines (Policy action based on location awareness)
Must have behaviour monitoring to restrict system behaviour and malicious changes in applications, keeping security-related processes always up and running.
Should have device control to regulate the access to external storage devices and network resources, as well as USB autorun prevention and also provide the granular level access like No Access, Read Only, Read & write, Full Access etc.
Must provide the flexibility to create firewall rules to filter connections by IP address, port number, or protocol, and then apply the rules to different groups of users
Must reduce network traffic generated when downloading the latest signature by downloading only incremental updates of signatures and scan engine.
Reduces network bandwidth consumed during pattern updates.
Should be able to update definitions & scan engine on the fly, without a need for reboot or stopping of services on servers.
Should have role based administration with LDAP integration to add the custom role type and also use the predefined roles as per requirement.
Should have multiple client deployment options like Web install page, Remote installation, MSI/EXE package installation, Login Script, Vulnerability Scanner etc.
Should support 32bit and 64bit operating systems
Should have a feature of scan cache based on digital signatures or on-demand scan cache.
It should recognize a missed event on a machine, which was switched off, and restart the same when machine is turned on.
Should have enhanced tamper protection that guards against unauthorized access and attacks, protecting users from viruses that attempt to disable security measures.
Must support plug-in modules designed to add new security features without having to redeploy the entire solution, thereby reducing effort and time needed to deploy new security capabilities to clients and servers across the network
Must have Plug-in solutions - Stateful Inspection Firewall/IPS with Virtual Patching, VDI, Data Protection, Mac Protection, Mobile Protection without any additional installation and should provide single console.
Data Protection must have File Attribute, Key words and Pattern based technology in single solution.
Data Protection should work in both environment - Workgroup with User/ Group/ Domain based policy creation option.
Solution Should be IPV6 attacks Ready.

6.6.4.26. Service Desk / Helpdesk & SLA Monitoring Tool

Bidder should quote any Standard / open EMS Software for monitoring application, services, & SLA along with Helpdesk tool for E-district Users along with all the necessary Hardware, DB, OS, patches, etc.

- Solution should be scalable and open to third party integration.
- Should support Web / Administration Interface.
- Should provide compatibility to standard RDBMS.
- The Service Management solution namely Service desk (incident and problem mgmt.), Change, and SLA management should have shared configuration database with a unified architecture.
- Offered solution should provide for future scalability of the whole system without major architectural changes.
- IT Service Management
 - Centralized IT helpdesk for technical and functional support must be maintained to respond to queries and solve issues of the users.
 - The Helpdesk must be accessible through various communication channels viz. Telephone, web based facility and email. The helpdesk should be able to respond to the queries/problems in the time limits as specified in Service Level Agreement.
 - Online Helpdesk system must deployed and would be used for management and support activity. Service desk is envisaged as an tool that will facilitate the end-to-end service support for users. The proposed system should include required hardware and software and should have sufficient analyst licenses to meet the requirement of Project.
 - The Solution should have the complete ITIL process flow for Incident, problem, Change and release Management
 - The solution should have Service Management Process Model in built based on ITIL v3 best practices.
 - At each stage in the cycle of the incident, the system should prompt users on the status and the missing information that is required to complete the flow
 - In case any process step is missed, the system prompts users to complete that step before they move to the next step
 - Solution should support reporting on the process flow to allow management to understand how organization is performing in terms of process adherence
 - Solution should support multi-tenancy with complete data isolation as well as with ability for analysts based on access rights to view data for one, two or more organizational units.
 - Solution should automatically provide solutions from the knowledge base.
 - Workflow must be able to perform notification via email, SMS and the have provision to interface with other communication modes. The solution should provision the administrator to create new or modify existing workflow by using actions like set fields, push fields, SQL query etc.
 - The solution should provide the functionality of executing searches to the entire database.
- Incident/Problem Management

- Flexibility of logging incidents via various means - web interface, email, phone. Service Desk solution should allow detailed multiple levels/tiers of categorization on the type of incident being logged.
- Service Desk solution should provide classification to differentiate the criticality of the security incident via the priority levels, severity levels and impact levels.
- It should allow SLA to be associated with a ticket based on priority, severity, incident type, requestor, asset, location or group individually as well as collectively.
- Solution should support fast service restoration leveraging previous incident data
- It should be possible for agent to view the 'Health of a selected asset' from within the ticket.
- The health view should be consistent across platform (Windows & flavours of UNIX / Linux)
- Should support automatic assignment of ticket to the right skilled resource based on business priority Ex - Database crash issue need not be assigned to an DBA unless the business service is completely down.
- Asset causing the business failure and business service that has failed should be automatically related to the ticket.
- It should be possible to architect a decentralized service operations (across OS, database and application versions).
- For integrations with other EMS/NMS tools, various options for integration should be provided - APIs, web services, SDKs.
- It should have an updateable knowledge base for technical analysis and further help end-users to search solutions for previously solved issues. Should support full text search capabilities.
- Change Management
 - Should support Change Impact and change collision detection based on affected CIs from CMDB
 - Solution should provide for Change Calendar with periodical views
 - Should support self-service change request and fulfilment with standard change requests via service catalogue
 - Should support Incident & problem driven change-release-deployment activities. End to End Release Management workflows should be supported with in-built rollback capabilities
 - Should support unified change and release tools (planning, risk assessment, scheduling, and execution tools) for complete enterprise across virtual & physical environments, applications, etc.
- Configuration Management
 - The Configuration Management Database should support multiple datasets with federation and reconciliation facilities so as to get data from various discovery tools and also through manual import process.
 - The Configuration Management should support Definitive Software and Media Library with content updates on a periodic basis.

- Normalization of data should be possible along complete definitive media library – software, hardware with standardization on attributes.
- Reconciliation of data should be possible with multiple data providers based on common attributes and ability to define precedence rules on attributes
- Federation of external data sources should be possible with ability to store common attributes inside CMDB and getting other attributes from external data sources in real time.
- Should provide best in class integration capabilities with CMDB compliant APIs.
- Should Provide a single shared view of services supporting Service Design, Transition and Operations stages of the lifecycle
- Should Provide a Service catalogue so as to establish a framework for Service definitions based on IT and business alignment
- Should Provide Service blueprints to describe functional and deployment models for the Service definitions
- Should automatically create Service models to describe how IT infrastructure supports business services
- Manage services consistently across heterogeneous data centre and cloud environments
- Service Level Management / Monitoring
 - The SLA Monitoring function of the EMS is by far the most important requirement of the Integrated Project. This is on account of the fact that commitment of the projects to the citizens is dependent on an effective and continuous monitoring of the timelines within which citizens are served at the Portal or GSKs. In this context, the SLA Monitoring will have to possess the following capabilities:
- Should integrate with the application software component of portal software that measures performance of system against the following SLA parameters:
 - Response times of Portal;
 - Transaction handling capacity of application server in terms of number of concurrent connects;
 - Should compile the performance statistics from all the IT systems involved and compute the average of the parameters over a month, and compare it with the SLA metrics laid down in the RFP;
 - Have a consolidated, automated graphical report for SLA compliance with ability to drill down to reason for non-compliance"
 - Manage service levels for delivery and support of business services
 - Fast, repeatable process for defining and capturing service level measurements
 - Real-time visualization of service level targets, agreement compliance data, penalties and rewards
 - Deliver service level information and alerts directly to IT Operations and Service Support consoles
 - Should support compliance and cost trending to assist in identifying areas for process and operational improvements

- Service Request Management
 - Should support single service catalogue for requestable services, spanning both IT and non-IT domains
 - Should provide for Service Requests Workflows and Fulfilment definitions for commonly used IT/non-IT services.
 - Catalog based on User profile
 - Ability to position both Custom-made and Standard Requests
 - Should send notifications to Customers based on the status
 - Should have the ability to extend and create new service request
 - Should have predefined catalogues that cover specific use cases
 - Should be completely web based and should be accessible from an portal
 - The services should be integrated to SLAs and should be auto measured for adherence.
- Reporting
 - Should provide for Reports for Service Support and Service Delivery processes through a unified portal.
 - Should have ability to have a consolidated view of data collected from different types of operations (Eg - SLA compliance for a selected service, it's dependent SLAs, OLA and UPCs, it's changes by priority, open incidents by priority and status, it's assets and individual asset compliance, patches installed and compliance to patches etc.) and displayed in a universal portal
 - Provide users (based on role) to drill down to specific report/data on a need basis
 - Provide detailed reports on a specific area as per the need of the user
 - Should support multiple views with flexible structure along with role based access.
- The Service Desk / Helpdesk & SLA Monitoring tool shall have software application which is ITIL compliant

6.6.4.27. Digital Camera

Pixels (Min.) - 5 megapixels or higher

- LCD Monitor
- Type TFT
- Display Size 2.7 inches or higher
- Recording Format - JPEG
- Zoom - 4X or higher
- ISO Sensitivity Setting- Auto / 80 / 100 / 200 / 400 / 800 / 1600 / High
- Recording Media - SD memory card, SDHC memory card, SDXC memory card, Multimedia Card
- Auto Focus Range- Approx. (W)=3 cm to infinity, (T)= 80 cm to infinity
- Self Timer -Yes
- Shooting Modes- Auto, Portrait, Landscape, Night Snapshot, Indoor, Low Light, Long Shutter, Movie, Documents
- White Balance Auto / Daylight / Cloudy / Fluorescent / Incandescent / Flash
- Flash Function Auto/ Red Eye Reduction/Off

- Other Features - Face detection/Noise reduction
- USB Connectivity Yes (Hi- Speed)
- Battery Backup 120 Min
- Operating system Support- Window XP / Vista / 7/ Linux

6.6.4.28. Computer Furniture

6.6.4.28.1. Computer Table

- Size in (LxBxH) – 1000x600x750 mm
- Keyboard pull out tray
- With one drawer
- ‘Sufficient Space for CPU & UPS for Desktop (CPU & Desktop to be supplied under this Bid)’

6.6.4.28.2. Computer Chairs

- Permanent Contact mechanism allowing back, to flex, naturally during reclining.
- Seat and the backrest are made up of moulded polyurethane foam
- Pneumatic height adjustment
- Swivel Mechanism
- Twin wheel castors

6.6.4.28.3. Backup Software

- Backup Solution should be available on various Operating System platforms like, Linux, Windows and proposed OS Platform Should support clustered configurations of the backup application in a cluster
- The backup software should be capable of doing full, incremental, differential, and variable block based de-duplicated backups. The backup software should be capable of performing self healing of backup indexes for consistency check and to verify if there is any corrupt data.
- Ability to restore backed up data from native OS utilities to eliminate the dependence of backup software and in case of disaster.
- Software should have full command line support on Linux, Windows and proposed OS.
- Should have SAN support on above mention operating systems. Capable of doing LAN free backups for all platforms mentioned above.
- Should support “Hot-Online” backup for different type of Databases
- Software should have an inbuilt feature for Tape to tape copy feature to make multiple copies of the tapes without affecting the clients for sending tapes offsite as part of disaster recovery strategy.
- Should have the optional ability of staging the backup data on a disk and then de-stage to a tape based on the policy for faster backups.
- Should de-duplicate the data without requiring any additional hardware
- Backup Software is able to rebuild the Backup Database/Catalog from tapes in the event of catalog loss/corruption.
- The Proposed backup solution shall provide granularity of file restore.
- Backup Solution shall support skipping of backup such as during holidays.

6.7. Pilot Bill of Material Details (For reference purpose only):**6.7.1. Web Server**

Particulars	Specifications
Processor	Intel Xeon 7400 Series or latest
No of Processors	2, scalable to 4
Clock Speed	2.4 GHz or equivalent / Better
Expansion Slots	Minimum 4 PCI-E I/O Expansion Slots
Main Memory	16 GB Fully Buffered DDR2
Main Memory Capacity (Scalability)	Scalable to 256 GB Fully Buffered DDR2 memory
RAS Features	Hot Pluggable Disk Drives, RPS, Error Correction and Parity Checking
Hard Disks	2 Nos. Hot-swap 300 GB SAS Disk Drives.
Hard Disks Scalability	Min 6 hot swap SAS HDD
RAID	Support for RAID 0, 1, 5 with SAS Drives
Redundant Power Supply	In-built
Operating System	Linux/Unix/Windows (Preloaded with license)

6.7.2. Application Server

Particulars	Specifications
Processor	Intel Xeon 7400 Series or latest
No of Processors	2, scalable to 4
Clock Speed	2.4 GHz or equivalent / Better
Expansion Slots	Minimum 4 PCI-E I/O Expansion Slots
Main Memory	16 GB Fully Buffered DDR2.
Main Memory Capacity (Scalability)	Scalable to 256 GB Fully Buffered DDR2 memory
RAS Features	Hot Pluggable Disk Drives, RPS, Error Correction and Parity Checking
Hard Disks	2 Nos. Hot-swap 300 GB SAS Disk Drives.
Hard Disks Scalability	Min 6 hot swap SAS HDD
RAID	Support for RAID 0, 1, 5 with SAS Drives
Redundant Power Supply	In-built
Operating System	Linux/Unix/Windows (Preloaded with license)

6.7.3. Database Server

Particulars	Specifications
Processor	Intel Xeon 7400 Series or latest
No of Processors	2, scalable to 4
Clock Speed	2.4 GHz or equivalent / Better
Expansion Slots	Minimum 4 PCI-E I/O Expansion Slots
Main Memory	16 GB Fully Buffered DDR2.
Main Memory Capacity (Scalability)	Scalable to 256 GB Fully Buffered DDR2 memory
RAS Features	Hot Pluggable Disk Drives, RPS, Error Correction and Parity Checking

Particulars	Specifications
Hard Disks	6 Nos. Hot-swap 300 GB SAS Disk Drives.
Hard Disks Scalability	Min 12 hot swap SAS HDD
RAID	Support for RAID 0, 1 , 5 with SAS Drives
Redundant Power Supply	In-built
Operating System	Linux/Unix/Windows (Preloaded with license)

6.7.4. Management Server (Backup server, Antivirus/Antispam, Directory Server)

Particulars	Specifications
Processor	Intel Xeon (Nehalem Based) 5500 Series, 8 MB L3 Cache
No of Processors	1, scalable to 2
Clock Speed	2.53 GHz or equivalent / Better
Expansion Slots	Minimum 3 PCI-E I/O Expansion Slots
Main Memory	8 GB Fully Buffered DDR3
Main Memory Capacity (Scalability)	Scalable to 96 GB Fully Buffered DDR3 memory or better
RAS Features	Hot Pluggable Disk Drives, RPS, Error Correction and Parity Checking
Hard Disks	2 Nos. Hot-swap 300 GB SAS Disk Drives.
Hard Disks Scalability	4 hot swap SAS HDD
RAID	Support for RAID 0, 1 , 5 with SAS Drives
Redundant Power Supply	In-built
Other Features	DVD-RW, Internal LTO-4 Tape drive with media. The bidder has to take care of Backup Requirement of the Solution.
Operating System	Linux/Unix/Windows (Preloaded with license)

6.7.5. Switches

6.7.5.1. 24 port Switch

Particulars	Specifications
Interface /Slots	1 x 24 ports 10x100 FE
	2 x 1000Mbps ports base single mode or GE
VLAN features	IEEE 802.1Q VLAN encapsulation
	Dynamic Trunking Protocol (DTP) or equivalent
	Minimum 255 VLAN
Management	RS-232 Console port
	Accessibility using Telnet, SSH, Console access.
	SNMPv1, snmpv2/v3
Standards	IEEE 802.1x support
	IEEE 802.3x full duplex on 10BASE-T and 100BASE-TX ports
	IEEE 802.1d Spanning-Tree Protocol
Power Supply	Internal power supply 230 Volt 50Hz input
Miscellaneous	All necessary power cords, adapters, data cables, connectors, CDs,

	manuals, brackets accessories, wire managers, etc. should be provided
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6.7.5.2. Switch for Rest Offices

Particulars	Specifications
Interface /Slots	1 x 8 ports 10x100x1000 FE
VLAN features	IEEE 802.1Q VLAN encapsulation
	Dynamic Trunking Protocol (DTP) or equivalent
	Minimum 255 VLAN
Management	RS-232 Console port
	Accessibility using Telnet, SSH, Console access.
	SNMPv1, snmpv2/v3
Standards	IEEE 802.1x support
	IEEE 802.3x full duplex on 10BASE-T and 100BASE-TX ports
	IEEE 802.1d Spanning-Tree Protocol
Power Supply	Internal power supply 230 Volt 50Hz input
Miscellaneous	All necessary power cords, adapters, data cables, connectors, CDs, manuals, brackets accessories, wire managers, etc. should be provided

6.7.5.3. KVM Switch

Particulars	Specifications
Computer Connections	16
LEDs	Bank and Active Port Display
Client/Host Connectors	Keyboard: 6-pin Mini-DIN Female PS/2/USB
Mouse:	6-pin Mini-DIN Female PS/2/USB
Monitor:	HDDB 15-pin Female VGA, SVGA, XGA, Multisync
Daisy-Chain Connector:	Two 6-pin Mini-DIN + One 15-pin HDDB (Standard KVM Cable minimum 12 feet)
Monitor Resolution Support:	Up to 1920 x 1440
Display Data Channel:	DDC1, DDC2B, DDC2AB
Keyboard State:	Saved and Restored
On Screen Display:	Yes; Password Protected
PC Control:	Keyboard, Hot Key, Push Button
Switching Confirmation:	Buzzer
Daisy-Chain Level:	8
Max. PC Control:	64
Bandwidth:	200MHz
Form Factor:	Rack Mountable
Compliances:	CE, FCC Class B, VCCI
Safety:	UL
Warranty:	5 Years on site warranty

6.7.6. Desktops

Particulars	Specifications
Processor	Intel E5400 Dual Core @ 2.7 Ghz, 2 MB L2 cache
Motherboard	Intel G31 Chipset or better OEM mother board
Bus Architecture	Integrated Graphics, Integrated (on board) High Definition Audio controller with internal speaker, 2 PCI slats
Bays	2x Internal 3.5" bays, 2xExternal 5.25" bays & 2xExternal 3.5" bays
Memory	2 GB DDR2 SDRAM @ 667 MHz Expandable to 4 GB
Hard Drive	160 GB SATA or better
Network	Integrated 10/100/1000 Mbps Ethernet Adapter (RJ-45), PXE support
Key board	Standard 104 key USB keyboard
Mouse	2 button optical wheel mouse
Monitor	15" TFT Monitor
Interface	1 serial, 1 Parallel, 6 USB (Minimum 2 in front), 1 PS/2 Keyboard, 1 PS/2 Mouse, VGA, audio ports for Microphone & headphones in front.
OS	Latest version of MS Window 7 Professional with 3 years updates & upgrades
Antivirus	This should be in sync with Antivirus proposed for data center.

6.7.7. Scanner

Particulars	Specifications
scanner type	Automatic Document Feeder
Resolution	Min 1200 dpi optical resolution
bit depth	48-bit
max document size	A4 / Legal
interface and operating system requirements	USB – compatible with USB 2.0 Windows XP Home and Professional Edition ; Windows Vista

6.7.8. Laser Jet Printer

Particulars	Specifications
Print speed	Minimum 23 ppm A4 & letter
Resolution	Up to 600 x 600 dpi
Printing Features	Manual duplex printing Economic mode for toner savings
Memory	2 MB RAM
Paper Handling Tray	150-sheet adjustable main input tray, 100-sheet output bin, manual two-sided printing

Particulars	Specifications
Paper Size	A4, A5, A6, B5, letter, legal, postcards, Envelopes
Interfaces	Hi-Speed USB 2.0 port,
operating systems support Required	Windows XP Home and Professional Edition ; Windows Vista,

6.7.9. UPS: Online UPS for Servers

Particulars	Specifications
Type	True On-Line Double Conversion UP
Capacity	3 KVA
Input Voltage Range	160-300 VAC
Input Frequency	40 Hz – 70 Hz
Output Voltage Note	220/230/240 V
Output Voltage Distortion	Less than +/- 3 % at full linear load
Output Frequency	47 – 53 Hz
Noise	< 45 db at 1 m
Protection	Overload, Short Circuit, Low Battery
AVR	Built in Automatic Voltage Regulator (AVR)
Indicators	LED indicators for AC Mains, DC, Load on Mains/Battery
Battery Type & back-up time	Batteries shall be of Sealed Maintenance Free (SMF) type Minimum 1 hrs back up on full load of UPS rating Minimum 8 hrs backup on full load of ROT (Minimum VAH for 60 minutes back-up = 4000 VAH) Battery make : Global Rocket / Exide / Panasonic/ Amar Raja / OKAYA
Recharge Time to 90% capacity	6-7 Hours after Complete Discharge
Ambient Conditions	Temperature: 0 to 45 deg Celsius Humidity: upto 95%
Battery transfer time	0 msec (online)
Communications & Management	Interface port - RS 232/ USB USB connectivity – included Inverter efficiency - 90% Overall Efficiency - 90% Monitoring Software - to be included Automatic restart of load -Included Cold start capability - To be included Generator compatible - To provide clean uninterrupted power when genset is used LED display - Online, On battery, Replace battery, overload Alarms - On battery, Low batter
Protections	Sustained input over voltage protection - Protection Up to 440 V

Particulars	Specifications
	sustained input for long duration Sustained Short circuit protection - To be provided Full time EM/RFI suppression - Yes

6.7.10. UPS for Desktops and LAN Switches

Particulars	Specifications
Type	Line-interactive
Capacity	600 VA
Input Voltage Range	140-300 VAC
Input Frequency	50 Hz +/-10%
Output Voltage	220 V +/- 10% (under line mode) 220 V +/- 10% (under battery mode)
Output Frequency	50 Hz +/- 1% (under battery mode)
Noise	< 40 db at 1 m
Protection	Overload, Short Circuit, Low Battery
AVR	Built in Automatic Voltage Regulator (AVR)
Indicators	LED indicators for AC Mains, DC, Load on Mains/Battery
Battery Type & back-up time	Batteries shall be of Sealed Maintenance Free (SMF) type The system must be capable of providing requisite battery back-up time of 45 minutes using SMF Batteries as per VAH rating below : (Minimum VAH for 60 minutes back-up = 600 VAH) Battery make : Exide, Panasonic, Rocket, Amar Raja, Okaya, Base Terminal
Recharge Time to 90% capacity	7-8 Hours after Complete Discharge
Ambient Conditions	Temperature: 0 to 45 deg Celsius Humidity: upto 95%

6.7.11. SAN Storage

- Architecture Fibre based SAN Storage (4 GB/s)
- Controller cache Total 4 GB cache with battery backup
- Host Ports Minimum 4 x 4Gb/s Host Ports
- RAS Features
 - Dual redundant RAID controllers
 - Dual redundant Power Supplies
 - Dual redundant Fans
 - Hot Swappable Bays and Disks
- Required Storage -Configured with 1.2 TB RAW or higher capacity using 146GB, 300GB 15K RPM FC Disks
- OS (clustering) Support - Windows, Linux, AIX, HP-UX, Solaris, Symantec, EMC, Veritas
- RAID Levels Supported - 0, 1, 0+1, 3, 3+0, 5, 5+0

- SAN Switches - 4 GBPS Fire Switches, 12 ports or more & relevant S/w with Licenses for integration of Servers with Storage
- HBA Cards - HBA Cards are required in Database servers and backup server

6.7.12. Firewall

- **CISCO- ASA5510-AIP10SP-K9**

6.7.13. 42U Server Rack

The following features should be present

- 42U Moducab OEM Rack, 600mm Width, 650mm Depth with depth, width and vertical aluminum extruded frame, side panels are detachable with slam latches without ventilation slot on side panels, top cover & bottom cover with the cable entry provision.
- 230V A/C 90 CFM Fan Unit
- Front Glass Door. Rear Door with vertical exhaust duct system
- A/c main distribution box with 15 nos. of 5amp socket.
- 19" Cable Manager
- Front panel mounting hardware.
- 19" H/D Tray 375mm Depth

6.7.14. Anti Virus/Anti Spam Software

Following features should be supported by the Anti-Virus solution :

- Should restrict e-mail bound Virus attacks in real time without compromising performance of the system
- Should be capable of providing multiple layers of defense
- Should be capable of installation on both the gateway as well as Mailing servers. Inbound and outbound monitoring on all data transfer mechanisms and all e-mail systems
- Should be capable of detecting and cleaning virus infected attachments as well
- Should support scanning for ZIP, RAR compressed files, and TAR archive files
- Should support online upgrade, where by most product upgrades and patches can be performed without bringing messaging server off-line.

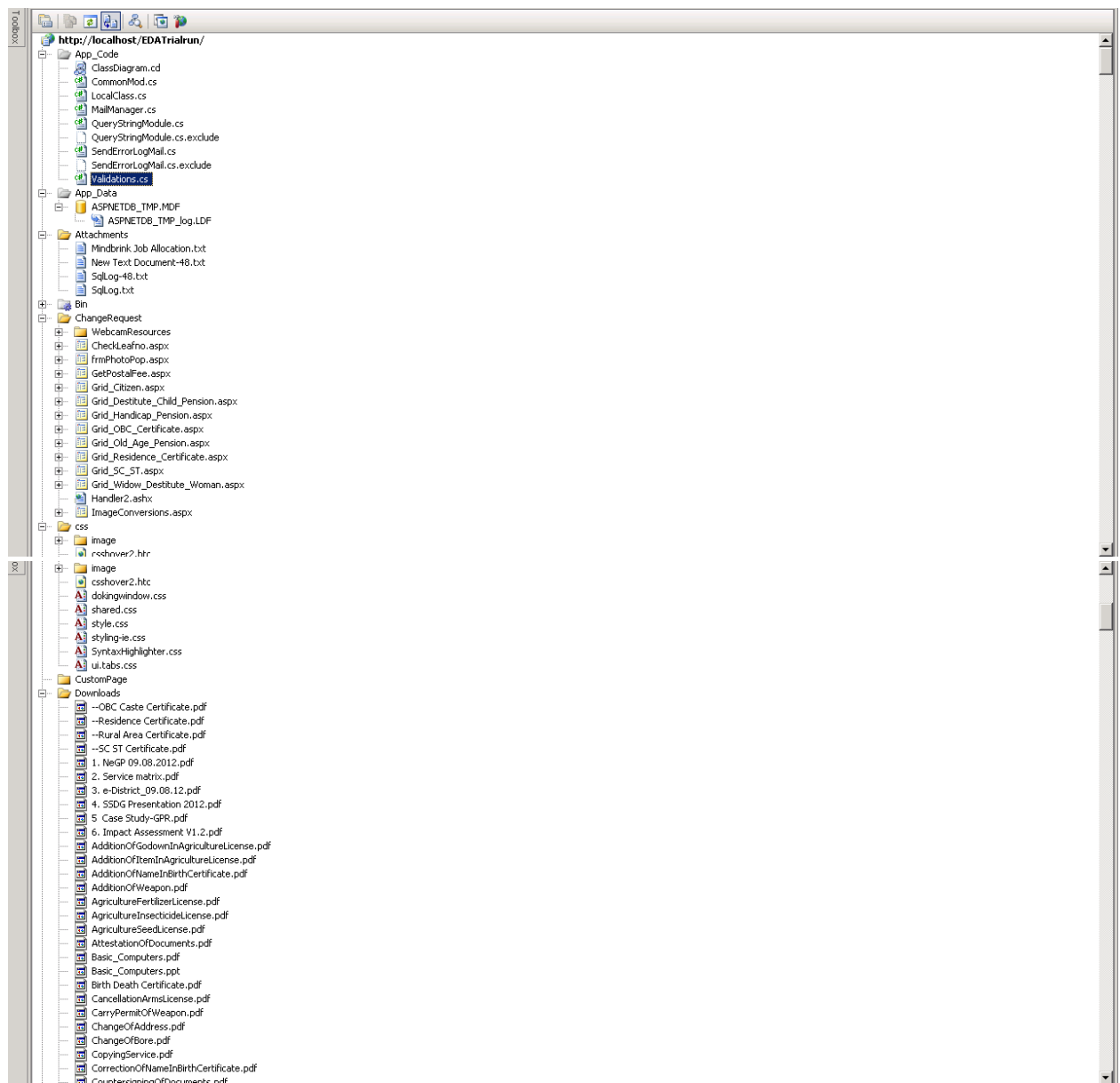
- Should use multiple scan engines during the scanning process
- Should support in-memory scanning so as to minimize Disk IO
- Should support Multi-threaded scanning
- Should support scanning of a single mailbox or a one off scan.
- Should support scanning by file type for attachments
- Should support scanning of nested compressed files
- Should be capable of specifying the logic with which scan engines are applied; such as the most recently updated scan engine should scan all emails etc
- Updates to the scan engines should be automated and should not require manual intervention
- Updates should be capable of being rolled back in case required
- Should support content filtering based on sender or domain filtering
- Should provide content filtering for message body and subject line, blocking messages that contain keywords for inappropriate content
- File filtering should be supported by the proposed solution; file filtering should be based on true file type.
- Common solution for anti-spyware and anti-virus infections; and anti-virus and anti-spyware solution should have a common web based management console.
- Should support various types of reporting formats such as CSV, HTML and text files
- Should be capable of being managed by a central management station
- Should support client lockdown feature for preventing desktop users from changing real-time settings
- Should be able to protect all the servers kept at central location

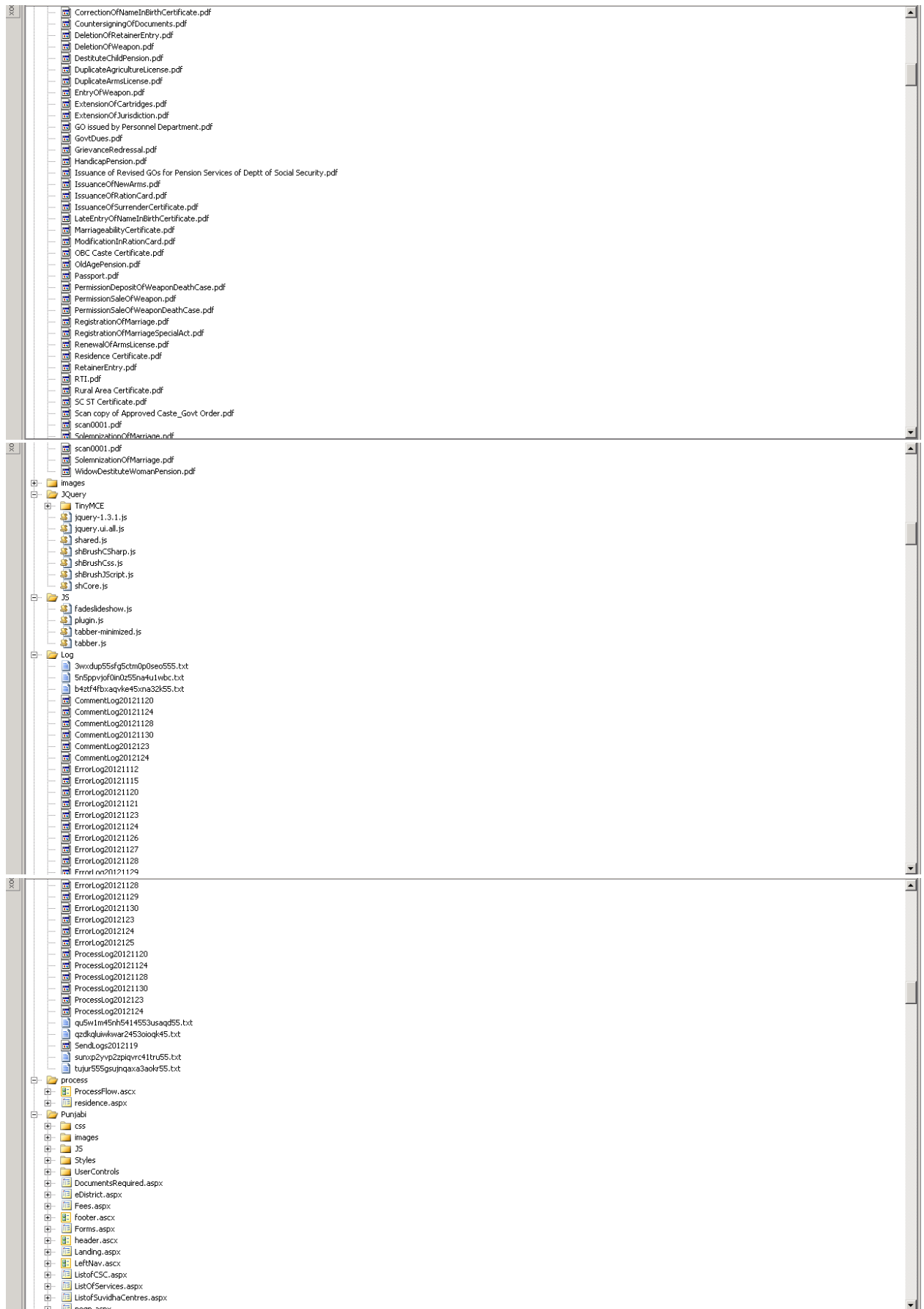
6.8. PAWAN NMS details

- CA eHealth Version -6.2.2
- CA Spectrum Version – 8.1 , likely to be upgraded to 9.2 soon.

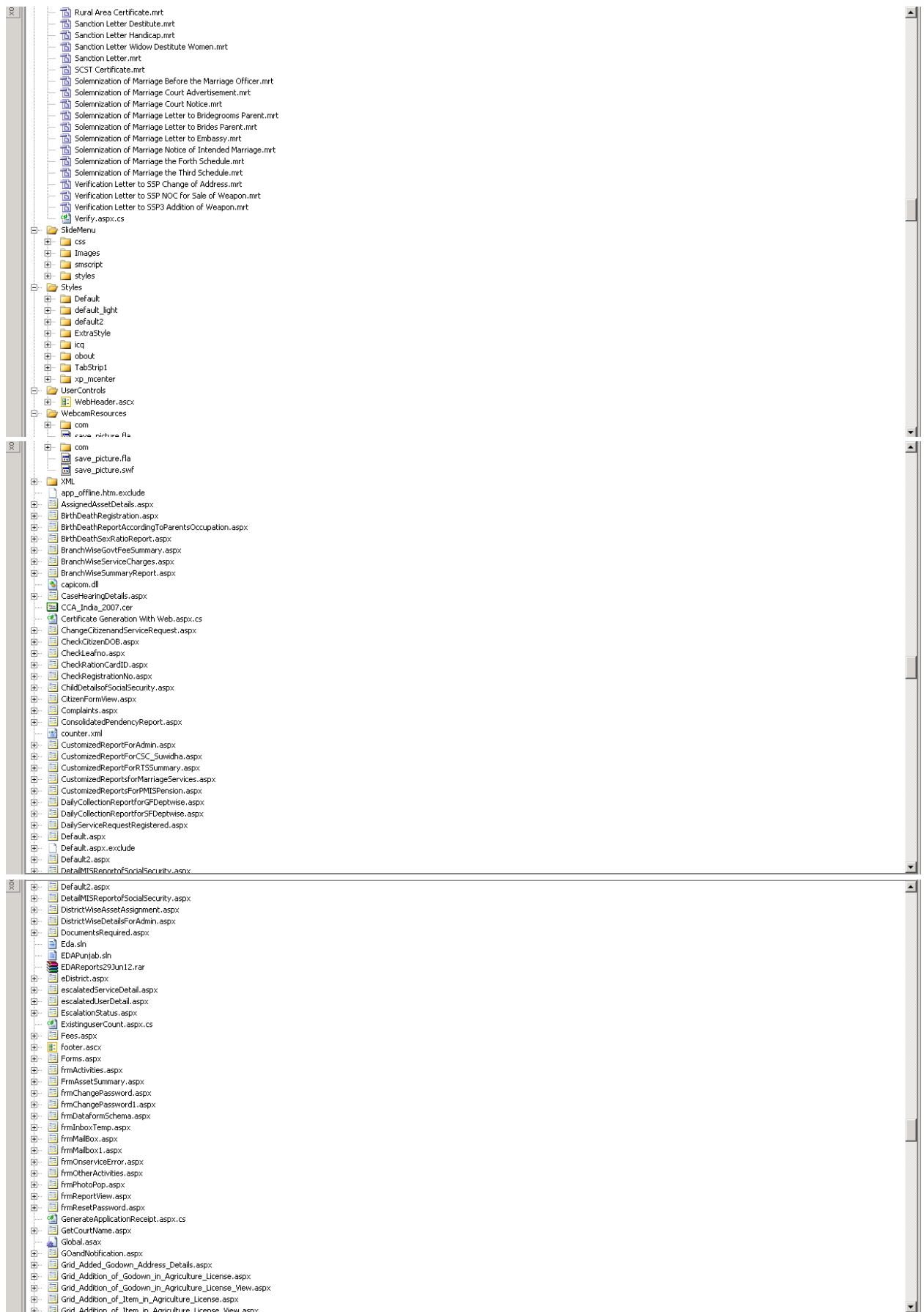
6.9. Visual Studio Solution Directory/Tree

Following is solution directory within Visual Studio for e-District Application, which gives an overview of components, programs and stubs interacting within the application.





<ul style="list-style-type: none"> [-] ListofSuidhaCentres.aspx [-] negp.aspx [-] PilotDist.aspx [-] Punjab_EDlet.aspx [-] ServiceDetails.aspx [-] RadControls <ul style="list-style-type: none"> [-] Ajax [-] Chart [-] Dock [-] Menu [-] Panelbar [-] Splitter [-] TabStrip [-] Toolbar [-] Treeview [-] Reports <ul style="list-style-type: none"> [-] Stimulsoft [-] Addition of Family Member to Ration Card.mrt [-] Addition of Name in Birth Crft.mrt [-] Addition of Name in Birth Crft1.mrt [-] Addition of Weapon Sticker.mrt [-] Addition to Fertilizer License.mrt [-] Addition to Godown License.mrt [-] Addition to Insecticide License.mrt [-] Addition to Seed License.mrt [-] Application Receipt.mrt [-] Attestation of Document.mrt [-] Birth Certificate.mrt [-] BPL Application Receipt.mrt [-] Cancellation of Arms License By Licensee.mrt [-] Cancellation or Arms License by Licensee Sticker.mrt [-] Carry Permit of Weapon.mrt [-] Certificate Generation With Web.aspx [-] Certificate Generation.aspx [-] Change of Address Sticker.mrt [-] Change of Bore Sticker.mrt [-] Change of Head of Family.mrt [-] Correction of Name in Birth Certificate.mrt 	<ul style="list-style-type: none"> [-] Change of Head of Family.mrt [-] Correction of Name in Birth Certificate.mrt [-] Death Certificate.mrt [-] Deletion Certificate.mrt [-] Deletion of Family Member to Ration Card.mrt [-] Deletion of Retainers Entry Sticker.mrt [-] Deletion of Weapon Sticker.mrt [-] Destitute Child Pension Identity Card.mrt [-] dummy.aspx [-] Duplicate Fertilizer License.mrt [-] Duplicate Insecticide License.mrt [-] Duplicate Issuance of Ration Card.mrt [-] Duplicate Seed License.mrt [-] Entry of Weapon Sticker.mrt [-] Extension of Catridges Sticker.mrt [-] Extension of Jurisdiction Sticker.mrt [-] Final Report of Sepcial Act 1954.mrt [-] Form of Application For An Arm License 2.mrt [-] GenerateApplicationReceipt.aspx [-] GovtDuesApplicationReceipt.aspx [-] GovtDuesApplicationReceipt.mrt [-] Handicap Pension Identity Card.mrt [-] Identity.aspx [-] Issuance of Ration Card.mrt [-] Issuance Surrender Certificate.mrt [-] Late Entry of Birth or Death Certificate.mrt [-] Late Entry of Name.mrt [-] Letter to SSP for Addition of Retainer Entry.mrt [-] Letter to SSP for Marriage-ability Certificate to Police.mrt [-] Letter to SSP for Marriage-ability Certificate.mrt [-] Letter to SSP for Renewal after grace period.mrt [-] Marriageability Certificate in Punjabi Text.mrt [-] Marriageability Certificate under Special Marriage Act 1954.mrt [-] New Arms License Sticker.mrt [-] New Fertilizer License.mrt [-] New Insecticide License.mrt [-] New Seed License.mrt [-] NOC for Sale of Weapon.mrt
<ul style="list-style-type: none"> [-] New Seed License.mrt [-] NOC for Sale of Weapon.mrt [-] Not Found Certificate.mrt [-] OBC Certificate.mrt [-] Old Pension Beneficiary Identity Card.mrt [-] Passport.mrt [-] Pension Beneficiary Identity Card.mrt [-] Permission for Deposit of Weapon in Death Case.mrt [-] Permission for Sale of Weapon in Death Case.mrt [-] Print Letter to SSP.mrt [-] Print Notice to License Holder.mrt [-] Print Verification for New Arms 1.mrt [-] Print Verification for New Arms.mrt [-] PrintSticker.aspx [-] PrintVerification.aspx [-] Ration Card BPL.mrt [-] RationCard.aspx [-] Registration of Marriage under Act 1955 Shedule C.mrt [-] Registration of Marriage under Act 1955 Shedule D.mrt [-] Registration of Special Marriage 1954 Court Advertisement.mrt [-] Registration of Special Marriage 1954 the Third Schedule.mrt [-] Registration of Speical Marriage 1954 Before the Marriage Officer.mrt [-] Registration under Special Marriage 1954 Letter to Bridegrooms Parent.mrt [-] Registration under Special Marriage 1954 Court Notice.mrt [-] Registration under Special Marriage 1954 Letter to Brides Parent.mrt [-] Registration under Special Marriage 1954 Letter to Embassy.mrt [-] Registration under Special Marriage 1954 Notice of Intended Marriage.mrt [-] Rejection of Weapon Sticker.mrt [-] Renewal of Arms Sticker.mrt [-] Renewal of Fertilizer License.mrt [-] Renewal of Insecticide License.mrt [-] Renewal of Seed License test.mrt [-] Renewal of Seed License.mrt [-] Residence Certificate for Final Output.mrt [-] Residence Certificate.mrt [-] Retainer Entry Sticker.mrt [-] Rural Area Certificate.mrt [-] Sanction Letter Deathills.mrt 	



Grid_Addition_of_Item_in_Agriculture_License.aspx
Grid_Addition_of_Item_in_Agriculture_License_View.aspx
Grid_Addition_of_Name_in_Birth_Certificate.aspx
Grid_Addition_of_Name_in_Birth_Certificate_View.aspx
Grid_Addition_of_Weapon.aspx
Grid_Addition_of_Weapon_View.aspx
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Grid_Attestation_of_Documents_View.aspx
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Grid_BPL_Antodaya_Family_Details_View.aspx
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Grid_Copying_Service_View.aspx
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Grid_Late_Entry_of_Name_in_Birth_or_Death_Crft_View.aspx
Grid_Late_Registration_of_name_in_Birth_or_Death_Cert.aspx
Grid_Leaf_Master.aspx
Grid_List_of_Heirs.aspx
Grid_Manufacturer.aspx
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Grid_Marriageability_Certificate_View.aspx
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Grid_Multitasking.aspx

Grid_MPKBY_Agency_License_View.aspx
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Grid_NOC_Permission_For_Sale_of_Weapon_View.aspx
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Grid_PPF_Agency_License_View.aspx
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Grid_Residence_Certificate_View.aspx
Grid_Retainers_Entry.aspx
Grid_Retainers_Entry_View.aspx
Grid_Revenue_Court_Advocate_List.aspx
Grid_Revenue_Court_Closed.aspx
Grid_Revenue_Court_Pending.aspx
Grid_Right_to_Information.aspx
Grid_Right_to_Information_View.aspx
Grid_Rural_Area_Certificate.aspx
Grid_Rural_Area_Certificate_View.aspx
Grid_SAS_Agency_License.aspx
Grid_SAS_Agency_License_View.aspx
Grid_SC_ST.aspx
Grid_SC_ST_View.aspx
Grid_Seed_Details.aspx
Grid_Seed_Details_View.aspx
Grid_Seed_License.aspx
Grid_Service_List.aspx
Grid_Service_Process_Master.aspx
Grid_Solemnization_of_Marriage.aspx
Grid_Solemnization_of_Marriage_View.aspx
Grid_Son_Details_View.aspx
Grid_State.aspx
Grid_Skill_Birth.aspx
Grid_Storage_Place.aspx
Grid_Storage_Place_View.aspx
Grid_System_Users.aspx
Grid_Tehsil.aspx
Grid_Transport_Driving_Learning_Licence_app.aspx
Grid_Transport_Driving_Learning_Licence_View.aspx
Grid_Transport_Driving_Licence_application.aspx
Grid_Transport_Driving_Licence_application_View.aspx
Grid_Upload_Deduction.aspx
Grid_Vendor.aspx
Grid_Verification_Leaf_Records.aspx
Grid_Verification_Leaf_Records_View.aspx
Grid_Village.aspx
Grid_Village.aspx
Grid_Weapon.aspx
Grid_Widow_Destitute_Woman.aspx
Grid_Widow_Destitute_Woman_View.aspx
Handler.ashx
Handler2.ashx
header.ascx
Home.aspx
ImageConversions.aspx
IncomeThroughAgricultureLicense.aspx
index.aspx
Landing.aspx
LeftMenu.ascx
LeftNav.ascx
ListofCSC.aspx
ListofServices.aspx
ListofSuvidhaCentres.aspx
Maintenance.aspx
MFCDll.cab
MonthlyReport.aspx
MonthlyReportForMarriageService.aspx
MonthlyReportForPassport.aspx
negp.aspx
NEWMaster.master
OperatorwiseDetailsGF.aspx
OperatorwiseDetailsGF.aspx-1.cs
OperatorwiseDetailsSF.aspx
OverallMISReportBlockWiseForSocialSecurity.aspx
OverAllMonthlyReports.aspx
PendencyReport3.aspx
Pending_Government_Dues_And_Recovery.aspx
PilotDist.aspx
Presentation.aspx
PRINT.aspx
PrintRTSSummary.aspx
OverS... ..

