

LOCAL GOVERNANCE REFORM PROJECT (LGRP)

TERMS OF REFERENCE

This is to generate Expressions of Interest (EOI) for this requirement. Please go to <https://cms.adb.org/> under LGRP Selection # 199247 to submit your EOI. Deadline for submission of EOI is on 12 June 2024.

Real Property Information Technology Firm (OP2/QCBS-002)

*Central RPIS with Transparency Portal and
Local RPIS with RPT Billing and Collection Module*

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ACRONYM

ADB	-	Asian Development Bank
API	-	Application Program Interface
AR	-	Assessment Roll
BIR	-	Bureau of Internal Revenue
BLGF	-	Bureau of Local Government Finance
BSP	-	Bangko Sentral ng Pilipinas
CAMA	-	Computer-Aided Mass Appraisal
CPD	-	Continuing Professional Development
DAR	-	Department of Agrarian Reform
DBM	-	Department of Budget and Management
DCS	-	Data Collection Sheets
DENR	-	Department of Environment and Natural Resources
DHSUD	-	Department of Human Settlement and Urban Development
DICT	-	Department of Information and Communications Technology
DILG	-	Department of the Interior and Local Government
DPA	-	Data Privacy Act of 2012 (Republic Act No. 10173)
DOF	-	Department of Finance
DSA	-	Data Sharing Agreement
EA	-	Executing Agency
ERP	-	Enterprise Resource Planning
FAAS	-	Field Appraisal and Assessment Sheet
GOP	-	Government of the Philippines
GIS	-	Geographic Information System
IA	-	Implementing Agency
IS	-	Information System
ILT	-	Idle Land Tax
JAT	-	Journal of Assessment Transactions
JCA	-	Journal of Cancelled Assessments
LGC	-	Local Government Code (Republic Act No. 7160)
LGRP	-	Local Governance Reform Project
LGU	-	Local Government Unit
LRC	-	Local Revenue Code
LRA	-	Land Registration Authority
LTOM	-	Local Treasurer's Operation Manual
MRPAAO	-	Manual on Real Property Appraisal and Assessment Operations
NGA	-	National Government Agency
NCIP	-	National Commission on Indigenous People
PDF	-	Portable Document Format
PDP	-	Philippine Development Plan
PRC	-	Professional Regulation Commission
RPIS	-	Real Property Information System
RPT	-	Real Property Tax
RPTA	-	Real Property Tax Administration
RPU	-	Real Property Unit
RCD	-	Report of Collection and Deposit
SEF	-	Special Education Fund
SMV	-	Schedule of Market Value
TOR	-	Terms of Reference
UI	-	User Interface
UX	-	User Experience
3 rd Party	-	Third Party System (external systems, i.e. eGovPH App, RPTA Systems, in-house or private provider)

I. OVERVIEW

ADB has provided the LGRP, herein referred to as the Project, to the GOP to help improve the local government revenue mobilization in order to upscale local public service delivery and strengthen local governance. In line with the PDP for CYs 2017-2022, the project is aimed to enhance and to provide efficient, effective, and equitable public service delivery at the LGU level. Hence, the outcomes on service delivery ability and local governance performance of LGUs improved. This project will likewise strengthen the policy and administrative environment for enhancing local own-source revenues from RPTs by instituting reforms in real property valuation and assessment.

The Project has four (4) outputs: (i) institutional development and policy support for property valuation strengthened, (ii) property tax valuation database and information systems implemented, (iii) real property taxation of selected LGUs enhanced, and (iv) local assessors professionalized and capacity of LGUs strengthened. The EA of the Project is the BLGF of the DOF. The IAs are the BIR, BLGF, DBM, DICT, and the DILG.

The objective of this assignment is to support BLGF in the implementation and monitoring of the Project activities and in ensuring the delivery of overall outputs. In particular:

1. Promote accuracy and timeliness in real property valuation information
2. Enhance transparency and accountability in the reporting of real property-related transactions

II. PROJECT DESCRIPTION

A. PROJECT OVERVIEW

The RPIS is a nationwide integrated system that links the LGUs, BIR, BLGF, BSP, DAR, DENR, DHSUD, LRA, NCIP and PRC. The linkage primarily focuses on the Market Values of properties as recorded in the LGU Assessor's Office, LRA, and BIR, as well as the other aforementioned NGAs, especially for the Transfer of Title processing and/or Real Property Sales Transaction for the purpose of having a single Schedule of Market Values for every LGU compliant with the Philippine Valuation Standards for taxation purposes. It also features a limited role-based access for the public, banks and financial institutions, real estate practitioners with regards to transparency portal that provide datasets on SMV, market values and analytics.

B. TIMELINE

The engagement of the FIRM for the RPIS Project is planned for twenty-one (21) person-months, subject to project extension, upon recommendation of the BLGF and the approval of ADB. The Project will only be awarded if the project extension has been approved. Commencement is expected within the 4th quarter of 2024 and fully operational by July 1, 2026.

C. COST COVERAGE

The estimated contract cost for the Firm is inclusive of taxes, and shall cover the FIRM's management cost and salary of key experts and staff, during the development period, to cover the FIRM's contingencies, per diem and all travel related expenses during direct visits to LGUs, and other necessary expenses related to the delivery of the Project.

BLGF will provide to the FIRM's staff the necessary working space, network connection, and internet connection required for the project, when working at the BLGF Head Office or Regional Office.

D. DEVELOPMENT METHODOLOGY

Preferred project management for the development of the RPIS is AGILE Software Development. Due to the complexity of the Project, changes in the vision, design and practicality require that the development is responsive. Flexibility must be embodied to ensure that the development will address real and actual scenario in mass appraisal needs of the LGUs and other stakeholders. The FIRM is expected not to be limited by the suggested structure, process flow and module in this TOR, as the development of the Project must be able to adapt to changes encountered and gaps discovered. AGILE method is envisioned to be relatable to the Project as the FIRM must interact directly and continuously with the LGU Assessor's Office, being the direct end user, and the stakeholders, such as the BLGF and the DOF, being the regulating and supervising agencies, as well as the other aforementioned NGAs.

RPIS consists of three (3) primary components, as follows:

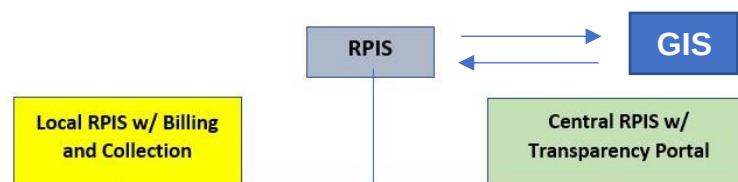
1. **LOCAL RPIS**, a Local Real Property Information System (with Billing and Collection) locally installed in the LGUs, running in a client-server architecture accessible through the Local Area Network (LAN) and on the internet. The system caters to real property valuation and assessment for taxation purposes, as well as to billing and collection. The Valuation and Assessment Module includes the automated valuation, real property assessment, management of taxpayer information, generation of accomplished assessment forms, maintenance of technical tables, generation of certification and reports and most importantly, the assessor's dashboard that allows the local assessor to manage the assessment documents for approval. The Billing and Collection module provides the local treasurer linkage with the data from the assessor's office with the treasury operation pertaining to real properties. It provides automation in billing, collection, auction and redemption, as well as simulations on tax impact and the generation of reports, notices, certifications, notwithstanding the treasurer's dashboard that allows management of treasury documents for approval. Local RPIS is designed to operate offline, or on a stand-alone, or can be part of an online network, with the ability to integrate and interact electronically with other systems. It caters to two (2) types of set-ups: 1) Stand-alone for highly urbanized/independent Cities, and 2) Integrated type, for Province and its Municipalities, where data are being synchronized, and vice versa. Transactions, payments and all data processing are being synchronized real-time, or on a per batch scheduling.

The system must be a web-based system and should have features to work in LAN environment, with appropriate built-in facility to capture and store data in on-premise Server, synchronized in the Provincial, Regional databases and at Central database on the Cloud and in the BLGF Data Center. In the absence of LAN connectivity, the system should be also accessible through the Internet.

2. **CENTRAL RPIS**, a Central Real Property Information System (with Transparency Portal), serves as the repository and report facility of the integrated real property and market values data from the LGU, NGA, and the public. It is purported to run on Cloud facility, with redundancy through BLGF designated Data center. The system is envisioned to collect and process aggregated data and reports from Local RPIS, and from other systems used by other LGUs, and partner NGA, through secured access, compliant with the DPA and DSA with the partner NGA. It features a transparency

portal that includes role-based access to real estate market values, SMV and analytics, allowing verification and sharing among real estate practitioners, bank appraisers, and transacting public. The Transparency Portal includes the development and enhancement of the BLGF Website, where it must inherit/capture all the features of the existing BLGF Website. The portal has an interactive comment and rating system features. It requires a user to log in, which allows the site to deliver more specific content and services based on the user's roles, access and permissions.

3. **GEOGRAPHIC INFORMATION SYSTEM**, a module that is integrated to both Local and Central RPIS, linking the Real Property database to the digitized maps. It is an application used to graphically represent a multi-layered property and valuation information. This also helps in the discovery of RPU declaration discrepancies which results in guaranteed increase in revenue.



E. PROJECT DEVELOPMENT TEAM

Proposing entities will determine the number and the nature of experts they will require to achieve the objectives of the contract, following their own proposed approach and Terms of reference. Entities must also describe their experience in the Philippines. However, BLGF requires a minimum of team composition of experts as shown in Project Team section of this document. In addition, the proposing entities should also include in their technical proposal, in the personnel work plan and in their financial proposal all their “non-key experts” required in accordance with their proposed approach and methodology. The proposing entity must also determine and indicate the number of person-months for which the entity needs each key or non-key expert. All experts engaged under the contract, whether key or non-key experts, must be citizens of one of the ADB member countries.

F. SYSTEM ARCHITECTURE

The system should be modular where the components can be separated or integrated easily. The components must be well defined so that modules can be reused where and when required, with adoption of the modular approach of design. The FIRM must identify some of these modules and describe it in its technical proposal document how this would be achieved.

It is expected that FIRM would add more value to the solution by adding features, incorporating suggestions and recommendations, which will address High Availability, Security, Scalability, Manageability and boost its Performance.

The system must also make use of any latest, top and stable front-end User Interface frameworks.

The reports will have to be generated in text and/or tabular form, as well as in graphical form. The report generation in the system has two (2) categories, (a) the standard reports specified in this document, and (b) ad hoc reports. The standard reports will be designed and installed during the implementation and for ad hoc reports. The system should have a customized Query Builder and report generator feature. Every report must have a facility to generate it in MS Excel Sheet, MS Word, PDF or as HTML format.

Security Features

The software must have the built-in standard security features pertaining all the checks and balances, to ensure that the integrity of data and the software does not have any bugs which mistakeably or by design, permit the users to tamper, alter or modify any data without the appropriate permissions.

The software should have the highest degree of security in the design. The FIRM must apply a suitable security component required by the system. The following are some of the system security features, but not limited to:

- Secured User's Login procedure
- Ability to maintain a history of passwords for user-defined time period that prevents the user from re-using old passwords
- Ability to allow account passwords to "expire" requiring users to enter a new password at system defined interval
- Ability to identify a user's password after answering a secret question correctly
- Ability to notify System Administrator or Security Administrator of multiple failed login attempts
- Ability to lock users out of the system after a System Administrator defined number of failed login attempts
- After a user defined number of days of inactivity, an account may be automatically locked
- Ability to notify System Administrators when an account is locked
- Ability to provide a tickler or notification feature to prompt for follow up action
- Multi-level approval functionality
- Two-Factor Authentication (2FA) for selected and sensitive transactions
- Access to the database should be based on the user's roles and permissions
- Built-In Audit Trail
- Passed through series of vulnerability test
- Complete with SSL Certificate and other security configurations
- Safe and hack resistant code

The FIRM should ensure that the system developed are secured so that both the back-end system and front-end user are not exposed to any kind of data manipulation and threat to the whole system. Should there be any problem to arise related to it, the FIRM must have proper protocol measures in place. The System shall be scanned with vulnerability testing tools after each version deployment. The FIRM shall be responsible to fix any related vulnerabilities.

Back-Up and Recovery Plan

The FIRM must submit a comprehensive Business Continuity Plan and Full Report of the Off-Site Location of the Database. Off-Site Database Back-Up must be safely kept both online (Cloud) and off-site. In addition, the FIRM must address the following:

- Database Full Back-Up must be conducted on a daily and/or weekly incremental basis
- Source Code Files Back-Up must be conducted on a daily basis, or whenever changes take place
- Full Back-Up of the Database and Source Code must always be kept in a safe location, subject to standard location protocols

G. TRANSFER OF TECHNOLOGY

The FIRM should propose suitable methods for transfer of knowledge to the BLGF and all other Users for the sustainability of the system.

After each version or modules complete development, the FIRM through its Testers, must conduct a User Acceptance Testing (UAT) / stress testing of the developed software, and must pass the approval of the Quality Assurance Specialist and the client (BLGF, LGUs, NGAs and other Private partners). All bugs must be reported, documented and fixed.

The bugs are classified into two (2) categories: Critical and Non-Critical. The Critical bugs are those which halt the system and the normal functions of LGUs, BLGF or any other Agency affected by the system's malfunction. Otherwise, it will be non-Critical. The FIRM must give an immediate attention to the Critical bugs and attend to them as soon as possible, and must be fixed within twenty-four (24) hours after receiving the complaint from the client. The Non-Critical bugs should be fixed within three (3) calendar days. However, in some exceptional cases, the FIRM may request or negotiate for a time extension, subject to the approval of the client.

Training of Trainers / Users

The FIRM must provide a comprehensive series of training/workshop sessions to trainers and end-users on the operation of the CAMA and GIS, in accordance with the proposed activities, required experts, and the frequency of training and workshops as stated in section XXIII (Activities with on-site visits to Prototype LGUs) of this document.

The FIRM must provide an adequate training to the System Administrator from the BLGF and LGUs, to ensure that maintenance, routine checks, back-up and recovery issues can be handled in-house, even after the expiry of the project period.

The firm must provide a tailored training plan and curriculum for each level and function of the staff it trains. All training materials must be documented in a training manual and provided to BLGF upon completion of the training. The bid response must include a training plan, including the type and amount of training required, and the level of pre-existing IT knowledge needed to receive the training effectively.

The FIRM shall submit a Training Schedule and Training Curriculum to BLGF for approval prior to the delivery of any training.

The Firm shall provide all material for all aspects of training, including the provision of user training manuals, and where possible online training for dissemination.

The FIRM shall either:

- a) Identify the trainees and approve the Training Schedule and Training Curriculum; or
- b) provide feedback and details of any required changes to the Training Schedule and Training Curriculum;

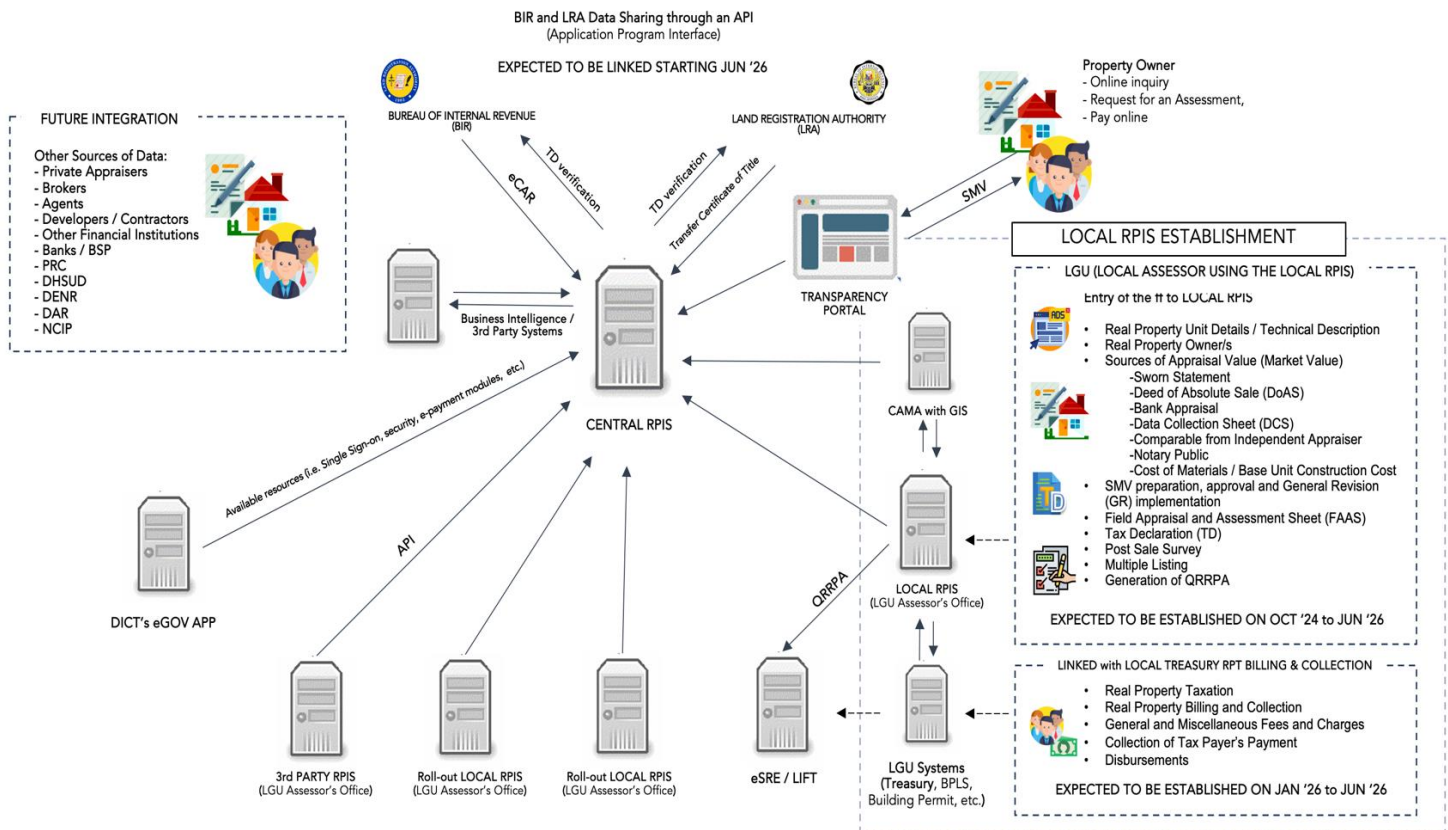
The FIRM shall promptly incorporate any required changes and resubmit the training schedule and training curriculum to BLGF. The training plan must include assessments to measure the success of training and knowledge transfer. It must be submitted to BLGF/LGU for review and confirmation that the knowledge transfer has been successful.

Source Code Ownership and Other Intellectual Property Rights

The BLGF will be the rightful owner of the Database, Source Code and all Intellectual Property Rights associated with the system. The developed RPIS system (its modules, all the components and as a whole) will be the sole property of the BLGF. BLGF will have the full rights over the system, and the FIRM will have no right to commercially use or apply the software elsewhere.

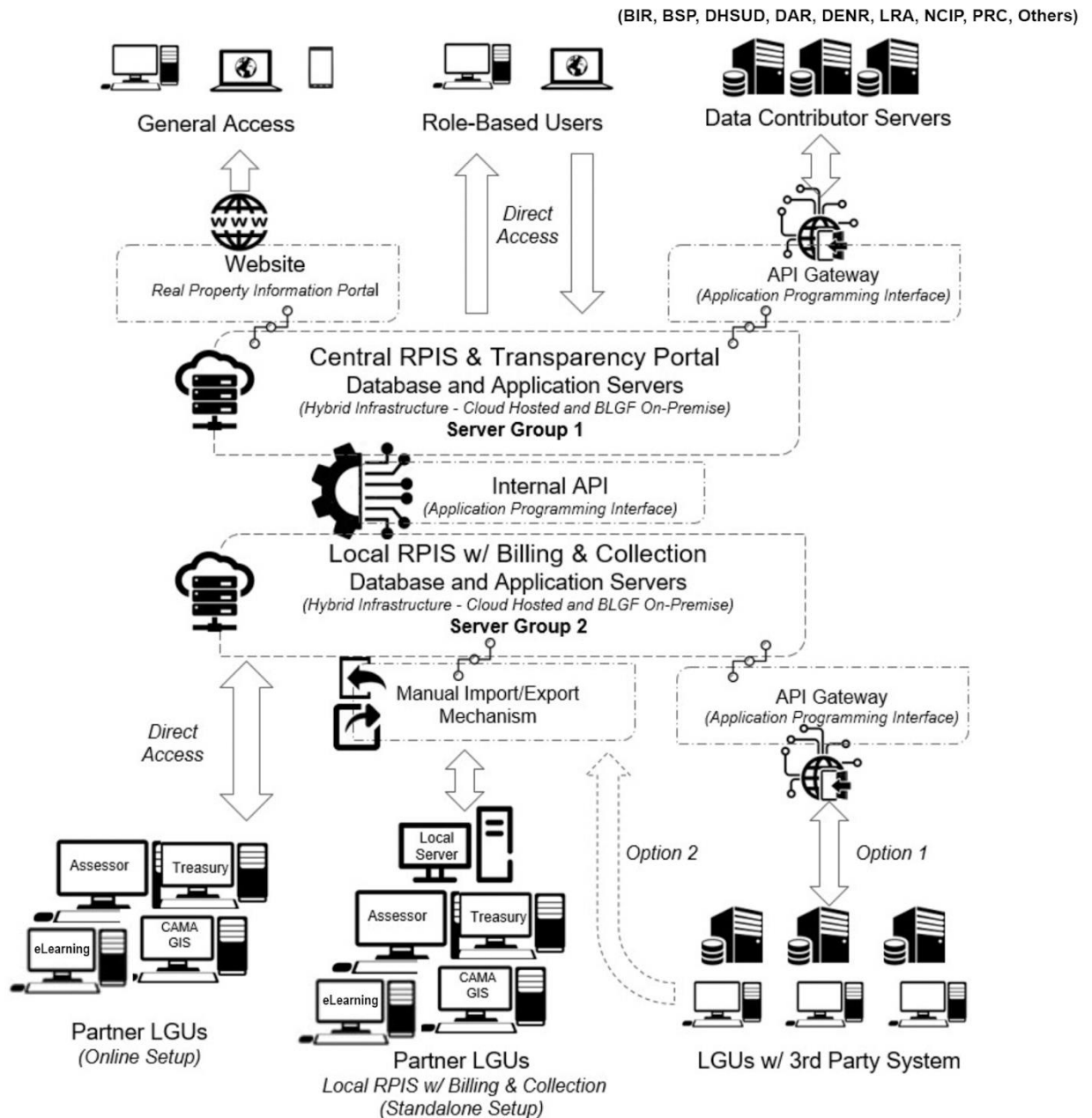
III. SYSTEMS OVERVIEW DIAGRAM

A. RPIS Diagram



B. LGRP Diagram

Comprehensive LGRP System - RPIS being the backbone system, with integration to CAMA, GIS, eLearning and other systems.



Real Property Information System will be a nationwide integrated system that links the LGUs, BIR, LRA, BLGF, BSP, DAR, DENR, DHSUD, NCIP and PRC related Real Property transactions, Market Values, processing of the Transfer of Title and/or Real Property Sales Transaction.

The LGRP Diagram shows the overview of the comprehensive LGRP System. RPIS being the backbone system, with integration to CAMA, GIS, eLearning, eBPLS and other systems installed in the LGU.

RPIS is designed to accommodate the development and maintenance of real property transactions, sales, leases and cost of materials.

RPIS has three primary components:

1. RPIS (Local) – local system installed in the premises of partner LGUs
2. RPIS (Central) -- central report facility running on BLGF's data center
3. Transparency Portal

RPIS (Local) is a web application running in a client-server architecture that caters to real property valuation, assessment and recording of real property sale transactions. RPIS (Central) will collect and process aggregated data and reports from LRPIS or other third-party systems used by some LGUs.

It caters to real property valuation and assessment for taxation, billing, and collection purposes.

It has a built-in facility to capture and store data in on-premise Server, synchronized in the Provincial and Regional databases, Central database on the Cloud, and at BLGF Data Center.

With its hybrid setup, it can run online or offline or can be part of an online network, with the ability to integrate and interact electronically with other systems. It caters to two (2) types of set-ups:

1. Stand-alone for highly urbanized/independent Cities
2. Integrated type, for Province and its Municipalities, where data is being synchronized and vice versa. Transactions, payments and all data processing are being synchronized real-time, or on a per batch scheduling

For those LGUs with existing Real Property Tax Administration System or referred here as Third Party RPIS, they do not need to replace their System in order to integrate to the RPIS Central. We will be using an encrypted API or Application Programming Interface that will serve as the middle ware for the exchange (Push and Pull) of data.

RPIS (Central) on the other hand, serves as the repository and report facility of the integrated real property and market values data from the LGU, NGA, and the public. It will run on Cloud facility, with redundancy in BLGF designated Data center. It is envisioned to collect and process aggregated data and reports from RPIS (Local), from other systems used by other LGUs, and partner NGAs, through secured access, compliant with DPA and DSA with the partner NGAs.

RPIS (Central) consists of three sub-modules, namely:

- Data Warehousing
- NGA-LGU Transaction
- Transparency Portal

The module facilitates the data warehousing of real property information and data exchange between partner NGA, LGU, and the public.

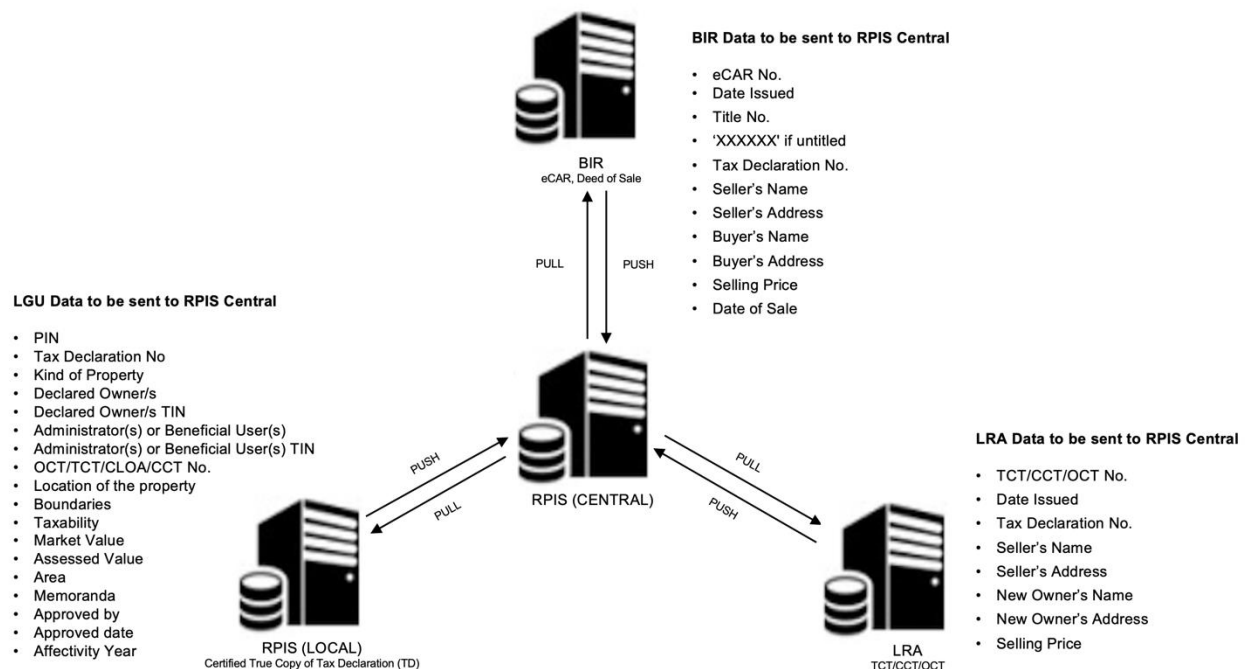
This will collect and process aggregated data and reports from RPIS (Local) or other third-party systems used by some LGUs.

It features a transparency portal that includes role-based access to real estate market values, SMV and analytics, allowing verification and sharing among real estate practitioners, bank appraisers, and transacting public.

The **Transparency Portal** includes the development and enhancement of the BLGF Website, where it must inherit/capture all the features of the existing BLGF Website. The portal has an interactive comment and rating system features. It requires a user to log in, which allows the site to deliver more specific content and services based on the user's roles, access and permissions.

C. Proposed Data Sharing

Below is a sample proposed data sharing diagram between partners (LGUs, BIR and LRA).



Above is a sample proposed data sharing diagram between partners (LGUs, BIR and LRA). In this triangulate figure, you can see the exchange of data between the three major players in this project.

We have the TD acronym for Tax Declaration data and payments shared by the LGU to the BIR for validation and verification of the Documents being presented to them.

Same is true with the LRA (Land Registration Administration), for the transfer of the Title.

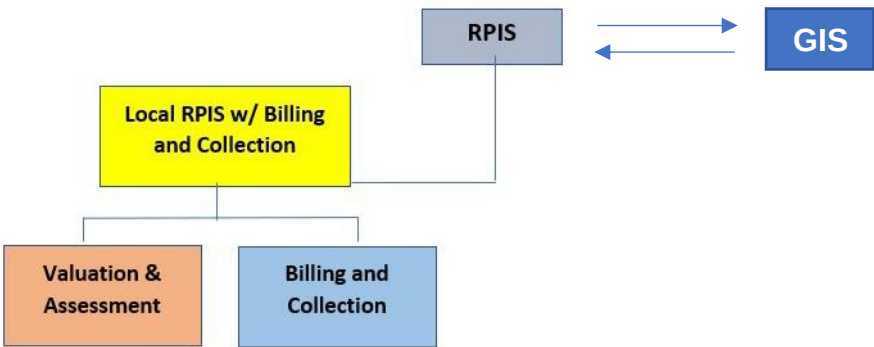
Afterwards, sending back the eCAR details and the New Owners pertinent to the Central Database for the LGU to have knowledge on the transaction.

All of the above push and pull data exchange will serve as the control in processing, and a pre-requisite procedure to each other.

IV. STRUCTURE

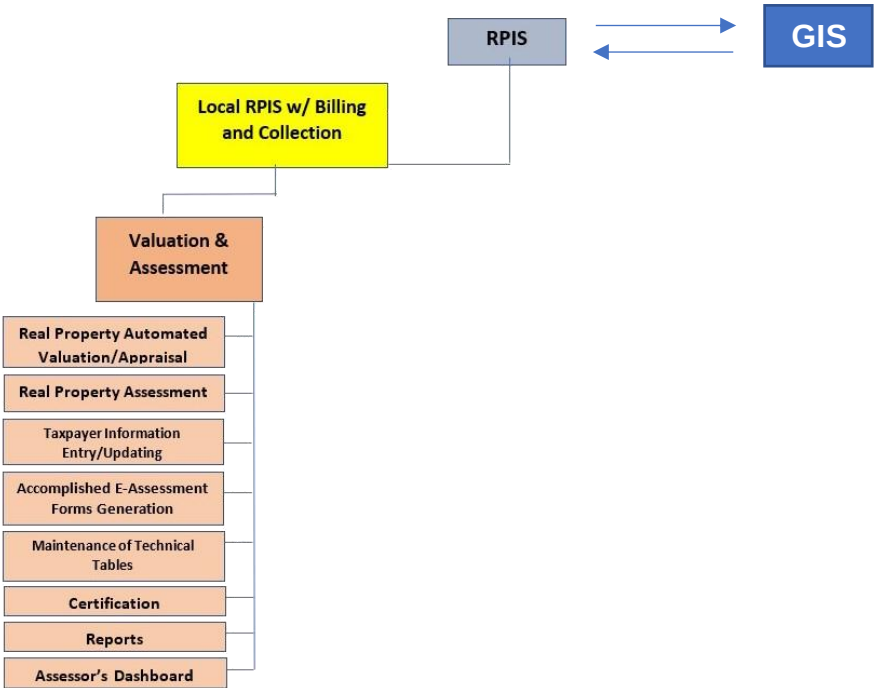
A. Local RPIS with Billing and Collection

The Local RPIS consists of two (2) Sub-Modules which aim to complement the local assessors daily real property tax administration, namely, Valuation & Assessment Module, and Billing & Collection Module, for the local Treasurer’s office pertaining to real property tax.

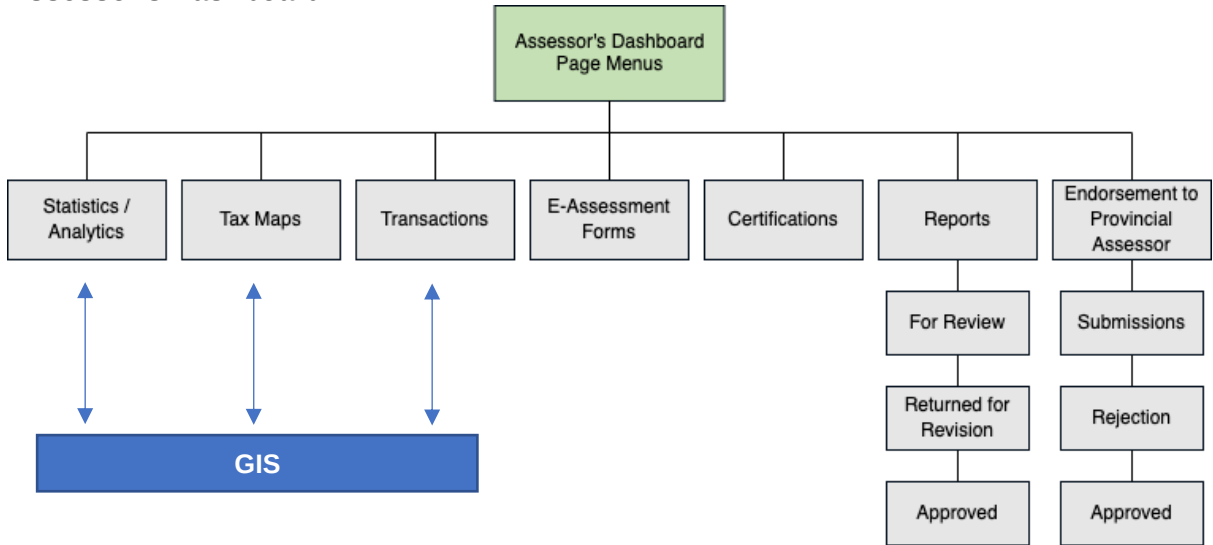


It must be compliant with the MRPAAO, but still capable of being flexible for future changes in the manual, the LGC, the LRC of the LGUs. The LGU shall have the option to use a locally installed server or connect directly to the “Local RPIS Online”, which runs under cloud infrastructure with application redundancy and database backup in the BLGF Central Office. It entails an import/export mechanism and a secured and encrypted API, complete with documentations to allow 3rd party systems integration, and likewise, must be able to share data with GIS Spatial database containing RPU information, and must link with the Local RPIS relational database.

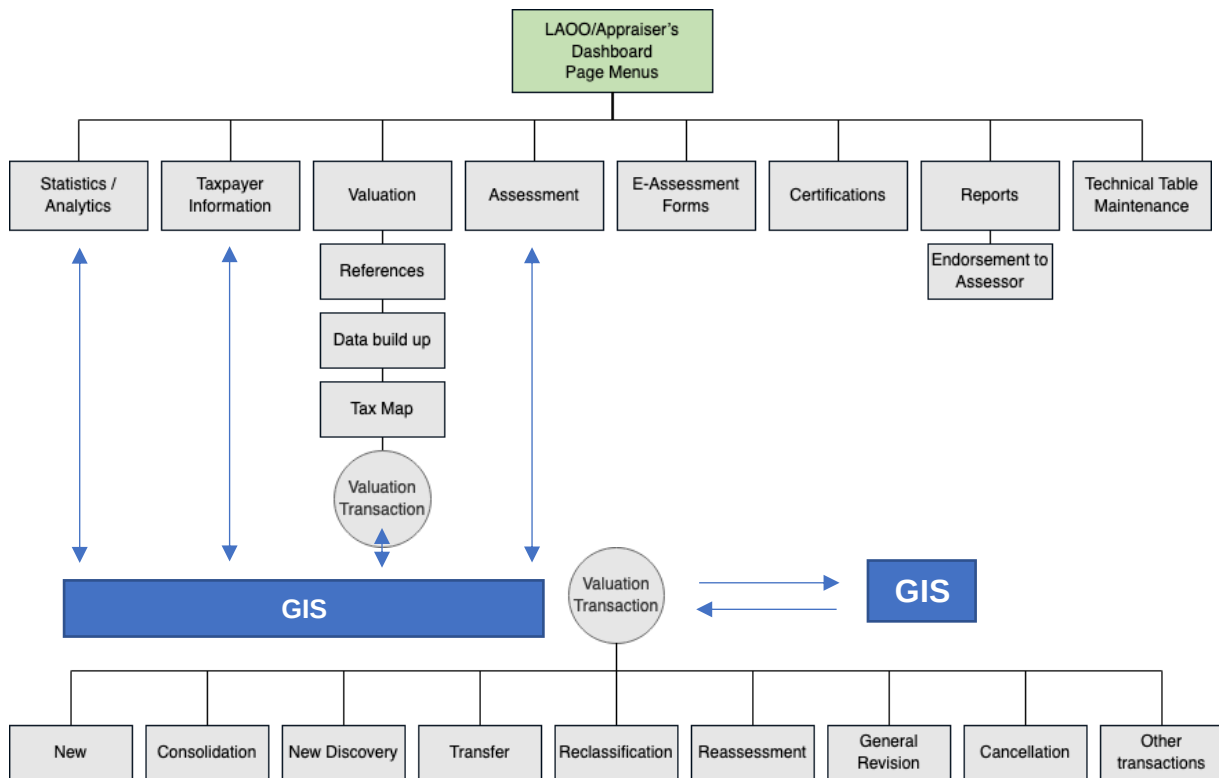
The Valuation & Assessment Module includes the processes such as Real Property Automated Valuation/Appraisal, Real Property Assessment, Taxpayer Information Entry and Updating, Generation of the Accomplished Electronic Assessment Forms, Maintenance of Technical Tables, Generation of Certifications and Reports, and the Assessor’s Dashboard.



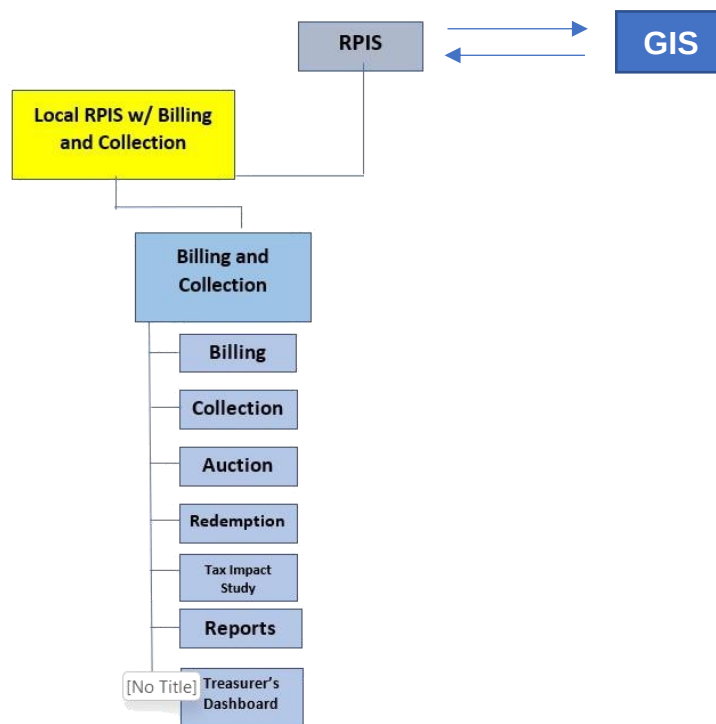
Assessor's Dashboard



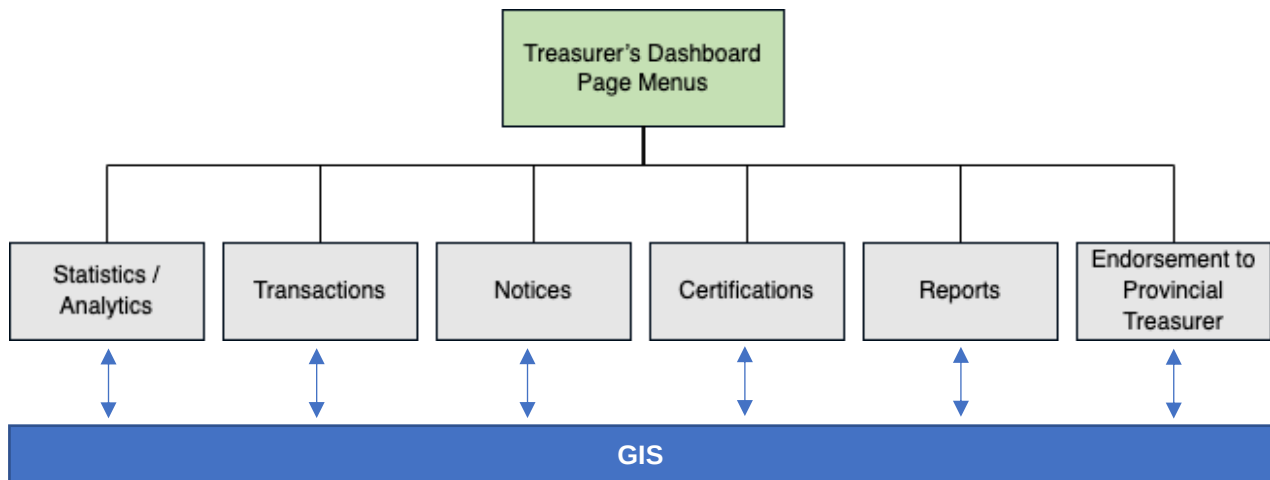
LAOO/Appraiser's Dashboard



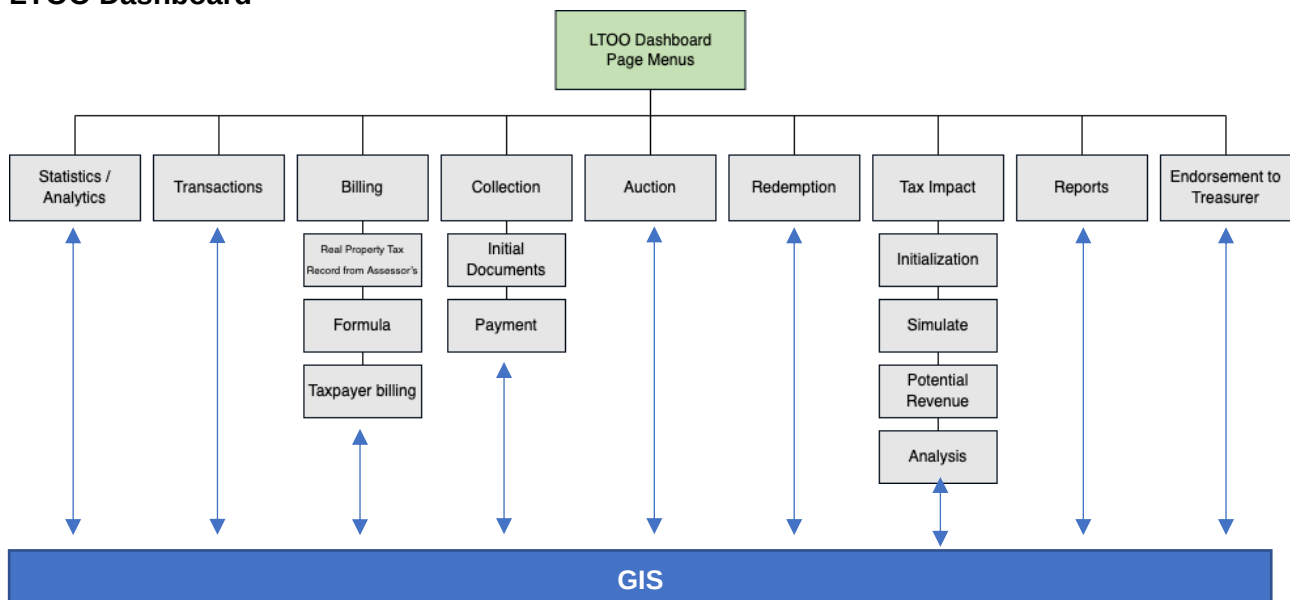
The Billing & Collection Module on other hand includes only the processes pertaining to Billing, Collection, Auction, Redemption, Tax Impact Study Generation of Reports, and Treasurer's Dashboard with regards only to Real Property Tax.



Treasurer's Dashboard



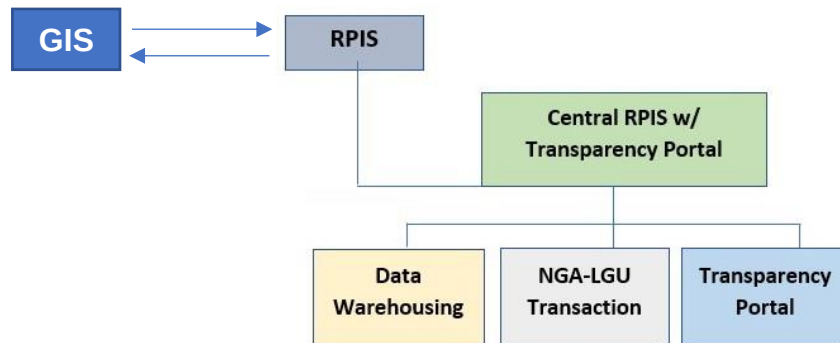
LTOO Dashboard



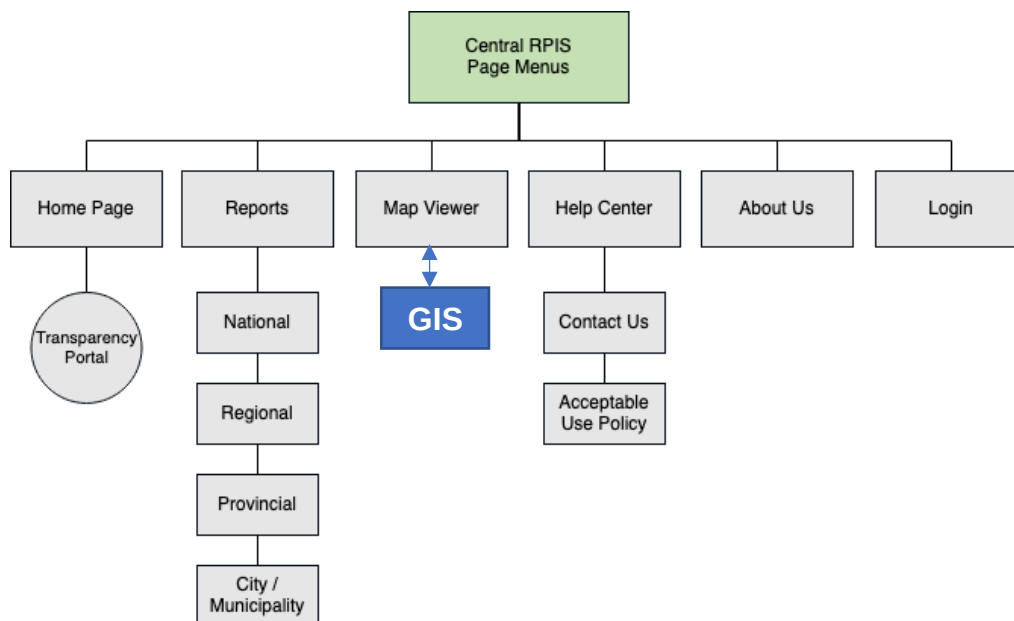
B. Central RPIS with Transparency Portal

The Central RPIS shall serve as a secured central data warehouse and report facility running on Cloud Infrastructure with redundancy on BLGF Data Center, wherein, it will collect and process aggregated data and reports from Local RPIS servers of select LGUs with the system installed or other RPTA systems used by other LGUs and NGAs. Other data contributors include real estate practitioners and bank appraisers. It requires an import/export mechanism and API complete with documentation to allow 3rd party systems integration. Embedded Transparency Portal includes information sharing between partners, subscribers, and other stakeholders, which publishes selected information from the Central RPIS Data Warehouse, and must be in accordance with the DPA and the signed DSA. It features a role-based log-in system which allows access to the general public, while other data providers have different access levels to different datasets. It requires an integrated map viewing system and its database spatially enabled to store location-based information linked to the Central RPIS Data Warehouse using unique ID.

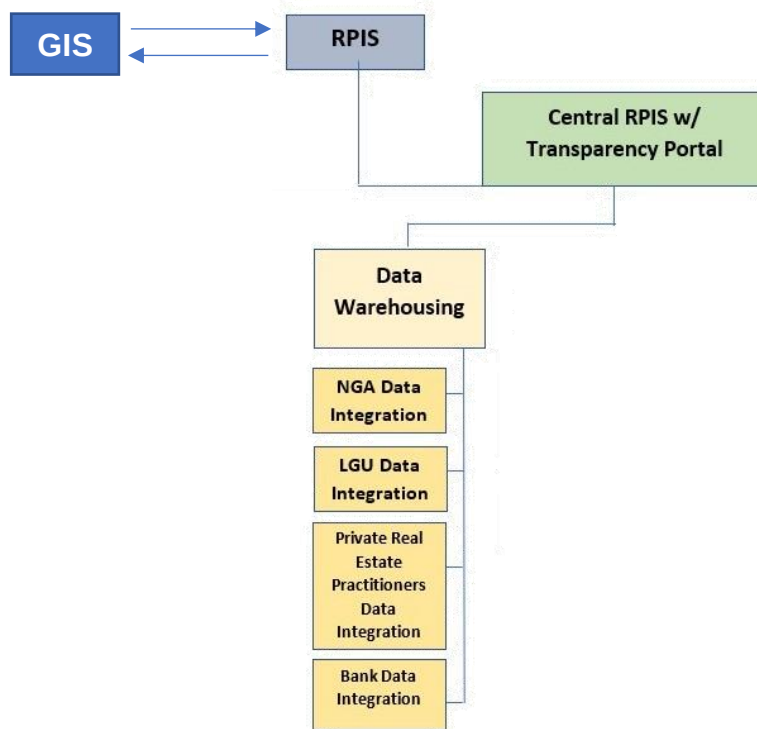
It consists of three (3) Sub-Modules, namely, Data Warehousing, NGA-LGU Transaction, and Transparency Portal Modules. The module facilitates the data warehousing of real property information and data exchange between partner NGA, LGU, and the public.



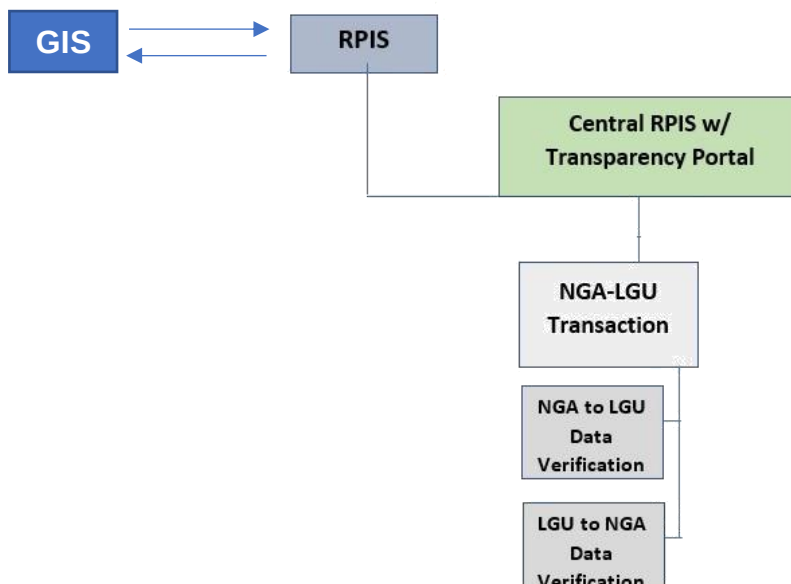
The Central RPIS web application will include the usual page menus of the same existing property information system. The home page will contain a summary of property data extracted from the database, news/articles on real property, and partial information from the transparency portal page with links redirecting to the page. Reports of the national, regional, provincial, and city/municipality property data will be presented in a table, chart (line, pie, bar, etc.), or narratives. The find/search function will be incorporated into the GIS module to find a specific area with corresponding property information.



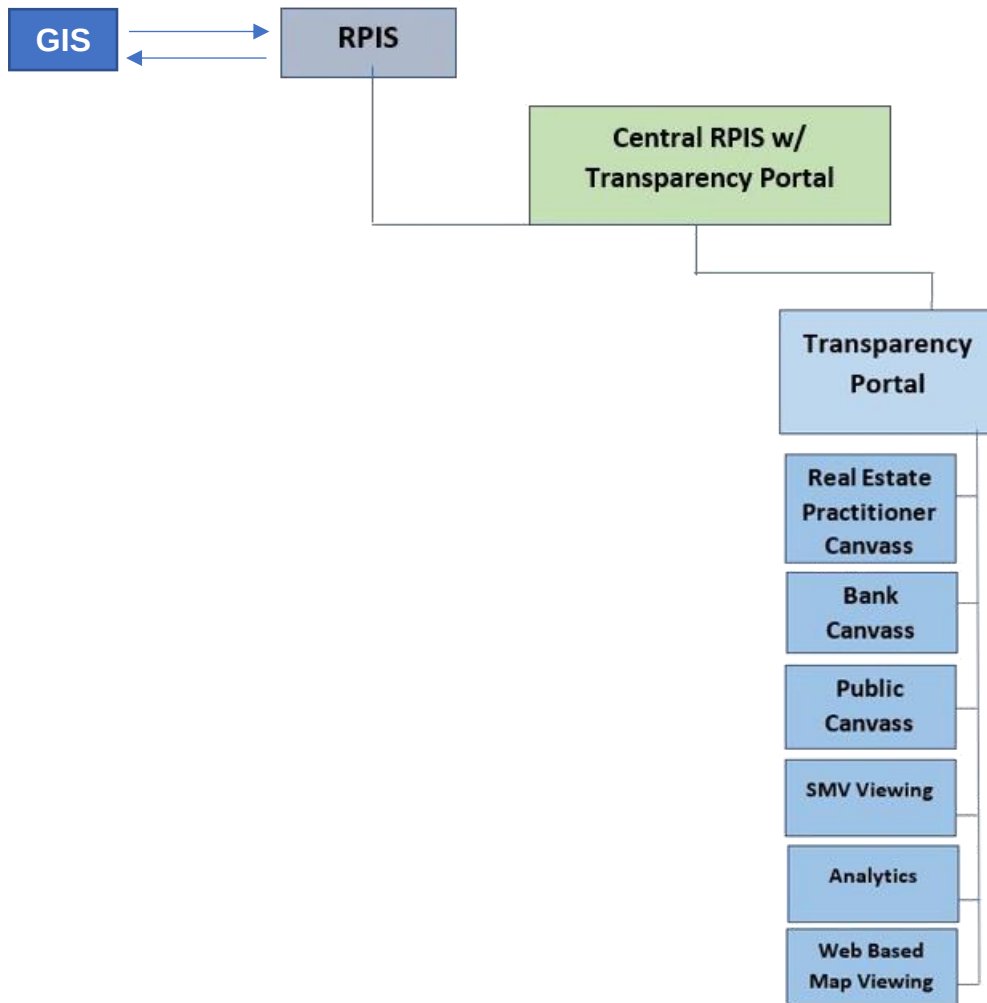
The Data Warehousing Module includes processes such as integration to the system of the data from NGA, LGU, Private Real Estate Practitioner's, and Bank or Financial Institutions.



The NGA-LGU Transaction Module features secured data exchange between the NGA and the LGU, allowing NGA to LGU Data Verification and vice versa.



Lastly, the Transparency Portal allows limited public access to Market Value Data, SMV Viewing, and Analytics, which is secured by role-based access among Real Estate Practitioner, Bank appraisers, and transacting public, subject to subscription and fees.



V. SYSTEM FEATURES AND FUNCTIONALITIES

A. LOCAL RPIS FEATURES

1. Valuation and Assessment

- i. Inputting in the system of Approved SMV; Valuation Formula for land, building and machinery; Schedule of Depreciation Rates for building, machineries and other improvements and structures; and Valuation Formula for applicable Adjustment Factors;
- ii. Database creation of Base Source Engineering Controlled Maps, Applicable Adjustment Factors, Ownership Instruments, and Classification, Sub-Classification and actual use;
- iii. Populating data in the valuation databank from GPS enable mobile device with e-DCS, digital spatial valuation data, and input from lazer range finder linked with mobile device;
- iv. Convert tax maps to digitized Tax map from the level of the Map of the Philippines down to the Property Identification Map;
- v. Facilitate the automated valuation/appraisal of property data from the database for tax purposes transaction;
- vi. Application of approved SMV in the computation of appraised values for reference in the development of Assessed Values;
- vii. Installation and application of adopted Assessment Level from Local Ordinance to compute for the Assessed Values;
- viii. Recording and updating of Taxpayer information;
- ix. Generation of accomplished electronic Assessment Forms;
- x. Maintenance of Technical Tables, relative to new ordinances or policy;
- xi. Generation of Certification and Reports relative to Assessment operations;
- xii. Review and approval of valuation and assessment documents by Assessor;
- xiii. Audit Trail to enable the system to track any changes to a property, including who executed the changes;
- xiv. Rule based feature, parameterized system, capable of updating the formula by the administrator, for system's flexibility and to accommodate changes in the computation;
- xv. Digital signature feature, when affixing signature through the use of a Signature pad;
- xvi. Capture Bills of Materials / Cost of Construction Entry;
- xvii. Data integration with CAMA with GIS and other systems;
- xviii. Integrated with architectural and engineering tools for floor plans and blueprints;
- xix. Link with Computer Aided Drafting / Designing / Sketching tools and gadgets, such as but not limited to, AutoCAD, Home Sweet, Context Capture, Garmin gps, drone, etc., to be able to attach the floor plan, land sketch to TD, digitize the map, e-Mapping, drone surveying / aerial photo / data collection and other related activities;
- xx. Link with GIS Application Software;
- xxi. Municipality to Province (and vice versa) connectivity. For Municipalities under the Province, real-time approval of transactions that falls on required Provincial level approval;
- xxii. Consolidate Provincial Database (for Provincial and Municipal installation);
- xxiii. Able to identify, link and/or merge the same property owner across databases (Municipal / City wide, Provincial and National);
- xxiv. On-the-fly reports generation facility;
- xxv. Data importing / exporting facility such as but not limited to Excel, PDF, CSV, Word;
- xxvi. Multiple file attachment capability;

- xxvii. System capability to send mass email and mobile SMS notification to tax payers, and must be configurable;
- xxviii. SMV online submission capability;
- xxix. QR code generation for quick access and validation.

2. Billing and Collection

- i. Inputting in the system of Real Property Tax Record; Formula in the Computation of Real Property taxes; and other documents;
- ii. Multi-year Billing for delinquencies (if applicable) of tax payers thru printing of manual notices, electronic billing, mobile application, and e-kiosk or web portal;
- iii. Online Assessment for Tax Payers;
- iv. Tax payment through various payment platforms, electronic, online payment gateways and channels;
- v. Generation and printing of bar coded and quick response (QR) coded Electronic Official Receipt (OR);
- vi. Automated payment recording;
- vii. Automated generation of list of delinquent properties and properties for auction;
- viii. Automated generation of auction notices, certificates and other auction documents and sending of electronic copies to taxpayers;
- ix. Online registration and submission of bids;
- x. Automated notification of redemption;
- xi. Installation of Simulation data for Tax Impact study;
- xii. Computation of Tax Impact;
- xiii. Analysis of Tax Impact Simulation;
- xiv. Simulation of Potential Revenue;
- xv. Forecasting;
- xvi. Generation of Certification and Reports relative to Real Property tax-related Treasury operations;
- xvii. Review and approval of Treasury documents pertinent to Real Property tax by Treasurer;
- xviii. Real property tax payments can be made either online, or on premise in the Municipality, Provincial Capitol's Cashier, Satellite Offices, Kiosks or Payment Centers with real-time data synchronization;
- xix. Be able to interface, share, provide and/or generate Real Property Assessment data with any other Third-Party Systems like Treasury Billing and Collection Module, eNGAS, CBMS, Building Permit, Building Occupancy Permit Issuance, eBPLS (for Business permit and licensing One Stop Shop), as well as other data required by the Banks, National Agencies such as but not limited to BIR, BSP, DAR, DENR, DHSUD, NCIP, LRA, PRC, DOF and BLGF LIFT/eSRE reports preparation;
- xx. QR code generation for quick access and validation.

B. CENTRAL RPIS FEATURES

1. Installation of secured and encrypted API that will facilitate the data integration of databases on real property information and real estate professionals for NGA such as BIR, BSP, DAR, DENR, DHSUD, NCIP, LRA, DOF and PRC;
2. Installation of API for LGUs that will facilitate data integration and interoperability to 3rd Party Systems;
3. Data integrated with LGU databases;
4. Data integrated with CAMA with GIS and other systems;

5. BLGF existing Website features migration to Transparency Portal;
6. Registration of Real Estate Practitioners, whether individual, company or association, who will upload their market value data to the system;
7. Creation of user account for Real Estate Practitioners;
8. Uploading of property data by Real Estate Practitioners;
9. Automated points crediting and redemption for free CPD Training with the BLGF;
10. Training signing up;
11. Record keeping of CPD Training completed;
12. Bank appraisal data integration;
13. Canvassing of market value by real estate practitioner;
14. Canvassing of “for” sale, lease, and rental property and machinery by public;
15. Data analytics for public consumption;
16. Map viewing with filters on assessed values, market values, and hazard filters

In general, the application should:

1. Enable encoding and be able to process data, and generate reports on regulatory real property transactions in LGUs, such as but not limited to listing of owners and real properties, providing spatial data for field appraisal and assessment sheets of real properties, generation of data from FAAS to tax declaration, registration of property sales and leases, and encoding of materials cost survey;
2. Be able to collect and store aggregated transactional data generated by LGU real property transactions, and should be available;
3. Have a data collection facility that must feature capabilities to generate static and dynamic reports and have provisions to integrate with middle-ware business intelligence systems and/or data mining software;
4. Facilitate secured sharing of data, valuation and assessment reports, and other information generated by the system for the needs of partner agencies, subscribers, and other stakeholders in real property valuation and assessment;
5. Have audit trail, database backup and data redundancy;
6. Enable 3rd party system integration using secured and encrypted API;
7. The system should include common website features such as web pages, news, events, document resources, forums, photo gallery, videos and others, to share related real estate information with the stakeholders and the public;
8. With built-in Content Management System (CMS) to manage the above information; and
9. There should be provisions for future development of integration features of the system through web services and other similar technologies to enable the system to interact with the third-party systems.

C. GIS FEATURES

1. Able to edit, compile, add new features and related information;
2. Ability to search and browse parcels and query any spatial database related to the real property database;
3. Should be able to draw/digitize point, line and polygon;
4. Should have built-in map creating technology with different interactive layers for storing information;
5. Geo-referencing, geo-processing, geo-editing must be enabled or built-in to the software;
6. With geo-database, shape file, relational database, access-based database, xml database/oracledatabase, PL/SQL, CAD file features;
7. The output file must be in shape file, geo-database, kml, xml, pdf format, jpeg format, MS word, MS excel formats;
8. Capability to link with other necessary database for further analysis such as RPIS, Tax Payer, Billing and Collection, etc.;

9. Must have report generating capability, interactive mapping capability, statistical analysis and mathematical analysis capability;
10. The software should have the capacity to adapt new macros for different applications;
11. User friendly, easy to operate data processing and mapping software for GIS data input;
12. Supports android and apple mobile/smart phones;
13. Compatible with Windows/Linux/Mac Operating Systems;
14. With secured and encrypted password; and
15. Must have SSL security certificate
16. Compatibility with any kind of browser and device; if this is feasible

VI. SYSTEM MODULES

A. Local RPIS Modules

1. VALUATION and ASSESSMENT MODULE

Role based system for Assessors and Assessment Office personnel, allowing computerized Real Property Tax Administration (RPTA), which includes automated valuation and assessment, tax mapping, generation of electronic assessment forms, printing and issuance of certifications and reports, as well a dashboard for the approval of assessment forms in municipal or city level, and in provincial level.

a. Real Property Automated Valuation/Appraisal Sub-Module

The module involves the installation of necessary information in the system such as the Approved SMV, Formula and Schedule of Depreciation Rates. Data gathering is incorporated to establish a database of Base Source Engineering Controlled Maps, adjustment factors, ownership instruments, classification and its sub-classification, as well as actual uses. Data Banking is also part of the feature to allow input of data from electronic version of DCS, digitized spatial valuation data, as well as other technological equipment in valuation. Under this module, digitized tax map is provisioned in relation to the GIS module. Appraisal transactions including the application of the Approved SMV is electronically performed.

b. Real Property Assessment Sub-Module

Under this module, the Assessment level from the approved Local Ordinance is adopted and applied to arrive at the Assessed Value.

c. Taxpayer Information Entry Module

Allows entry and updating of taxpayer information, as well as generation of registry report.

d. Accomplished E-Assessment Forms Sub-Module

The Module provides for the automated generation of the electronic assessment forms.

e. Maintenance of Technical Tables

Enables the LGU to update or modify the technical tables in the appraisal and assessment records and forms.

f. Certification Sub-Module

Provides the automated generation of the Certification documents.

g. Report Sub-Module

Provides the automated generation of the Assessment Reports.

h. Assessor's Dashboard Module

In this module, the municipal or city assessor reviews and approves assessment forms for approval or recommending approval and receives notifications on status transactions for action or transmitted documents for approval by the province (if applicable).

2. BILLING and COLLECTION MODULE

Role based system for Treasurers and Treasury Office personnel, allowing computerized billing and collection, which includes automated billing, collection, auction, redemption and issuance of certifications and reports, as well a dashboard for approval of assessment forms in municipal or city level and in provincial level.

a. Billing Sub-Module

Includes the installation in the system of the Real Property Tax Record, Tax computation formulas, and Notices. The module's main feature is the billing of the taxpayer thru manual sending of notices, electronic billing, mobile application and e-kiosk or web portal.

b. Collection Sub-Module

The module employs the various electronic payment platforms for modern and real time access of the taxpayer. It also features the generation of Official Receipts and Acknowledgement Receipts.

c. Auction Sub-Module

The module automates the generation of various auctions & sale notices, certificates, reports, as well the printing and electronic transmittal to tax payers. It also features the automated registration of bidders and their bids.

d. Redemption Sub-Module

The module automates the generation of redemption notices, and certificates, as well the printing and electronic transmittal to taxpayers.

e. Tax Impact Study Sub-Module

Simulation of the Tax Impact Study is automated which includes the installation of simulation data such as proposed SMV, computation of the Tax Impact, analysis of the Tax Impact Simulation, and the simulation and analysis of the Potential Revenue.

f. Report Sub-Module

Provides the automated generation of the Treasury Reports pertaining to Real Property Tax.

g. Treasurer's Dashboard Module

In this module, the municipal or city treasurer reviews and approves treasury documents and forms for approval or recommending approval and receives notifications on status transactions for action or transmitted documents for approval by the province (if applicable).

B. Central RPIS Modules

1. DATA WAREHOUSING MODULE

Features integration of data from partner NGA, Assessor's Offices in the LGU, Data submission from Private Real Estate Practitioners, and Data from Bank appraisals.

a. NGA Data Integration Sub-Module

Features warehousing of property information, taxpayer information, and private real

estate practitioner information through API with NGA such as BIR, BSP, DAR, DENR, DHSUD, LRA, NCIP, and PRC.

b. LGU Data Integration Sub-Module

Warehouses property information and taxpayer information from LGU Assessors office through API with their Local RPIS or other RPTA systems.

c. Private Real Estate Practitioners Data Integration Sub-Module

Allows the active participation of PRC licensed private real estate practitioners by allowing submission of property information, including valuation, sales data, lease information, and rental data.

d. Bank Data Integration Sub-Module

Features sharing of property valuation information from banks and financial institutions on properties as collateral and acquired assets.

2. NGA-LGU TRANSACTION MODULE

Secured data sharing module for partner NGA and the Assessor's Offices in the LGU, allowing verification or validation of property and taxpayer information.

a. NGA to LGU Verification Sub-Module

The module allows the partner NGA to conduct the query on the property and or taxpayer information, as well as request for Certified True Copy, relative to matching information with their respective records to LGU records and even across agency, depending on Data sharing Agreement.

b. LGU to NGA Verification Sub-Module

The module allows the LGU Assessor's Office to conduct query on property and or taxpayer information, as well request for Certified True Copy, relative to matching information with their respective records to partner NGA records depending on Data sharing Agreement.

3. TRANSPARENCY PORTAL MODULE

Role-based system for real property market values data for Private Real Estate Practitioners, Bank Appraisers, and the public. It also features viewing of SMV nationwide and Data Analytics for research and information request needs.

a. Private Real Estate Practitioners Canvass Sub-Module

The Module allows Private Real Estate Practitioners to perform canvass or query on Market Value and related property information on submitted records to the system by appraisers and brokers, whether appraised, sold, lease or rented real estate properties.

b. Bank Data Canvass Sub-Module

The Module allows Bank appraisers to perform canvass or query on Market Value and related property information on submitted records to the system by banks and financial institutions, private appraisers, and the assessor's office.

c. Public Canvass Sub-Module

This module allows the general public to conduct survey or canvass on property listings for sale, lease or rent from brokers, whether land, with building or machinery.

d. SMV Viewing

Allows the general public to query and access SMV nationwide, including historical data of the SMV.

e. Analytics

Provides Data Analytics on Price Index, Price Trend, Price variance on periods, SMV aggregate data and updating status, and RPT Collection statistics.

C. GIS Module

a. Data Management

Role-based system for GIS data collection, processing, inquiry and analysis.

b. Map viewing

Provides Mapping with filter overlay of Market Values, Assessed Values, Land Use, Sales History, Hazard filters and other related maps like Snapshots and interactive Timelapse.

VII. SYSTEM COMPONENTS

A. Local RPIS Components

1. Local Real Property RDBMS (relational database management system)

A secure and reliable system for storing and managing local real property data, installed on a local server within the premises of the LGU.

2. Field Data Collection Module

A real property data collection module installed in mobile devices w/ data synchronization capability (online and post-processing options).

3. Local Systems API (Application Programming Interface)

A tool enabling the local applications to exchange data and functionality easily and securely, to external third-party developers and internal departments within the LGU.

B. Central RPIS Components

1. National Real Property Data Warehouse

A spatially-enabled central repository of real property data coming from various sources such as but not limited to LGUs, NGAs, and private financial institutions. All RPUs shall have a universal identification number common to all data contributors.

2. Transparency Portal with Map Viewing System

A website, wherein, the general public can access selected real property data with reference to its location and other factors affecting its value.

3. Partner Government Agencies Transactional System (BIR, LRA, LGUs)

A transactional sub-system integrated into the central data warehouse providing data sharing options for the BIR, LRA and LGUs.

4. Central Systems Application Programming Interface (API)

A tool enabling the central applications to exchange data and functionality easily and securely, to external third-party developers, business partners, and internal departments within BLGF.

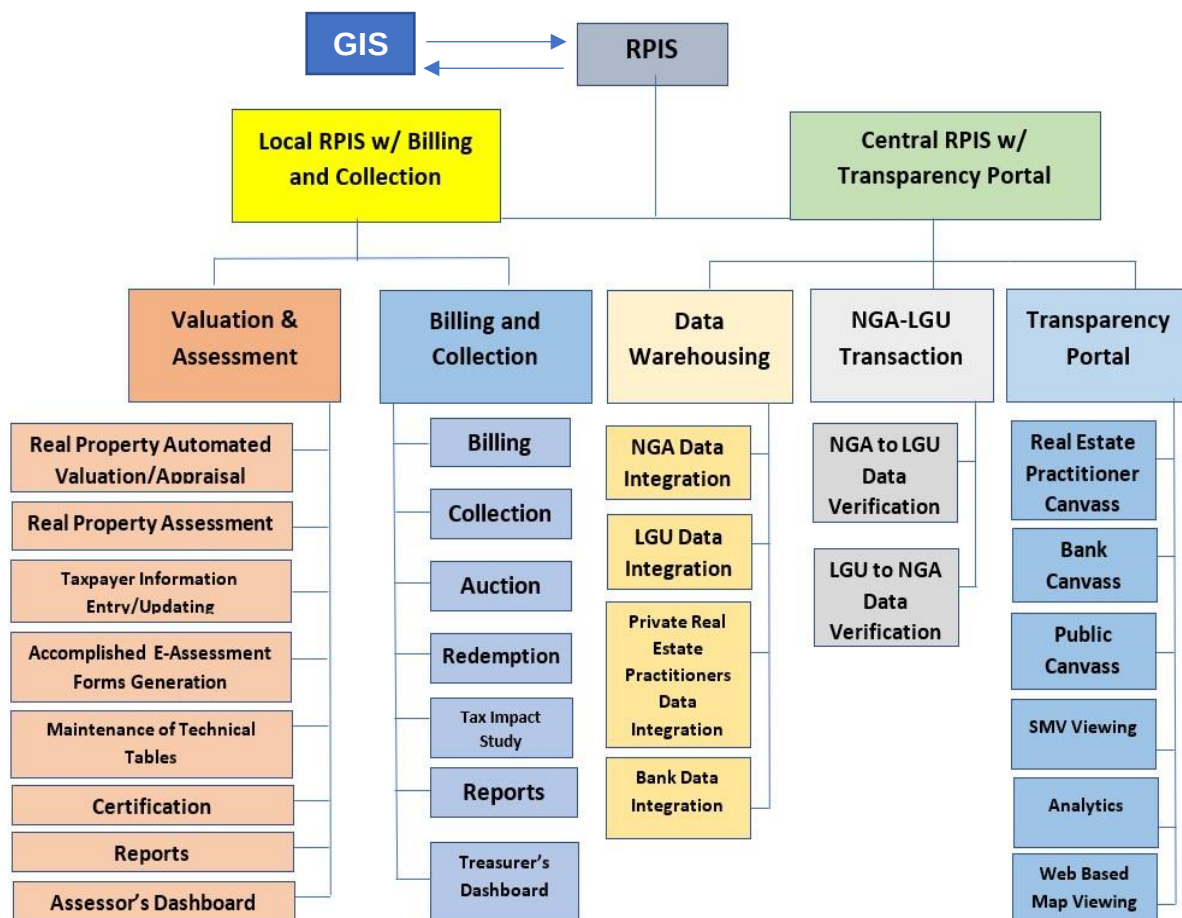
5. Cloud Infrastructure

A fast, high-availability and secure platform where the central systems shall be installed and run. This shall have a redundancy setup within the BLGF Data Center.

C. GIS Components

Geographic Information System (GIS), is an information system that is used to input, store, retrieve, process, analyze and output geographically referenced data or geospatial data, in order to support decision making for planning and management of land use, natural resources, environment, transportation, urban facilities, health and other services linked to Local and Central RPIS database, operations, transactions and reports.

VIII. SYSTEM PROCESS FLOW



The RPIS has three (3) main modules, which depend on the user-access level. All LGU Assessors have secured access in the Local RPIS, as installed in their local terminal. The system's overall process starts with the user from the LGU office logging-in in to the system that leads to the main dashboard, consisting of Valuation and Assessment, which is intended for the Assessor's Office, and the Billing and Collection for the Treasurer's Office. The user from the Assessor's Office are to be provided with eight (8) sub-modules. The sub-module on Real Property Automated Valuation/Appraisal process entails that for first-time use, the user incorporates to the system the approved SMV, valuation formula, depreciation schedules and adjustment factors. For instances of replacing the SMV and depreciation table with newly approved, the user reinstalls them to the system. With the necessary information already embedded in the system, the user can opt to proceed with the sub-module on completing the base information to be used by the system, aptly the data gathering on base source

engineering-controlled maps, adjustment factors, ownership instruments, as well as the classification, sub-classification and actual use of the real property, and other information pertinent to the real property. The user proceeds with the Valuation & Assessment module to data bank from valuation instruments through uploading e-DCS data from a mobile device, digitization of spatial valuation data, and technical figures from laser range finders used in the field by the appraisers. Users can also enter or update in the system the digitized tax maps from varying tax map levels. The sub-module on appraisal transactions can be accessed by the user to process the various property transaction in the Assessor's office, such as subdivision, consolidation, new discovery, reclassification, re-assessment, General Revision, cancellation and others. Lastly, the user can use the sub-module on the application of the approved SMV, to effect the values to the RPUs.

For the user to process the generation of the Assessed Values of the RPUs, the user can access the sub-module on real property assessment to incorporate in the system the approved Assessment Level Ordinance, and effecting the same on the real property records to come up with the Assessed Values of the RPUs. The user also can enter or update the taxpayer information in the database in the taxpayer information module. Another module that will allow users to populate and print out assessment forms, compliant with the MRPAAO, is the sub-module on the generation of accomplished e-Assessment forms.

In cases that, the technical tables in the assessment records require updating, relative to new ordinances and laws, the user can access the sub-modules on maintenance of technical tables. In addition, the user can select the sub-modules on Certifications and Reports, to generate e-copies or printouts, compliant with MRPAAO prescribed and required certifications and reports. Lastly, in order that the Assessor can monitor the various appraisal and assessment documents for their vetting and approval, access can be made on their own dashboard to review, approve, reject, and recommend for approval by the Provincial Assessor, the various e-assessment forms certifications and reports. The transmittal of the Proposed SMV is also provisioned in the module.

The Local RPIS also features the Billing and Collection for real property taxation, to which users from the Local Treasurer's Office have access. The system automatically connects the access to the database of the Assessment & Valuation module on real property tax record, that the Treasurer's Office need to process the billing of real property taxpayers. For the first time access, installation in the module of the formulas in the computation of the basic RPT and SEF, including discounts, penalties and interest, ILT, and other levy is to be made by the user. Relevant notices, including its format and design, must be incorporated in the module such as Notices of Time for the Collection of Tax, Tax Bill / RPT SOA, and Delinquencies, as well as Proof of Service.

Treasurer's Office user is offered also options on various Billing platform, such as manual, electronic, mobile and kiosk. For Manual, the function to print out Notices are provided for packaging for manual courier transmittal to the taxpayer. With regards to the sub-module on e-Billing, the PDF version of the Notices are generated and are sent automatically to the registered email addresses of the tax payers. The sub-module on the Mobile Billing provides maintenance and monitoring of the Treasurer's Office of the mobile application and the registration of taxpayers in the application. This is a two-way process as the taxpayers need to install the application in their mobile device and register their account. Upon approval of registration, the system culls out the PDF versions of the notices for the viewing and download of the taxpayers. The same procedure is in effect for the Kiosk module with the addition of being able to print a copy of the notices by the taxpayers themselves on-site.

With regards to the Collection module, the user sub-module on Billing provides the user from the Treasurer's Office, the process that will enable the installation of the e-Payment linkages with accredited banks, credit/debit cards, e-wallet and as well as payment centers. Official

Receipts, Clearances and Journals prescribed under LTOM are also incorporated in the system. The Payment sub-module provides the Treasurer's Office and the taxpayer two (2) platforms, namely, mobile application and e-kiosk. These are linked with the taxpayers who registered an account in the billing mobile application and e-kiosk, allowing convenience in payment for the taxpayer, and real time collection for the Treasurer's Office.

The Treasurer's Office user has the option also to process the auction of real properties of delinquent accounts. Before the user can proceed with the main auction process, they must initialize in the system the various notices, reports and certificates, following the prescribed format in the LTOM, with customization of the LGU. Relatedly, the user must initialize in the system, by culling the list of delinquent accounts and properties for auction from the billing and collection records, notwithstanding installation in the system of the necessary auction documents to be used. The user, upon generation of the list of properties for auction, moves to processing the notices to taxpayers, through either the manual printing of the documents or through generation of PDF copies and sending through email addresses declared and registered by the taxpayers. In order to move forward to the actual bidding in the auction sale, the Treasurer's Office is provided with the option in automating the registration of bids through the web portal, wherein, the taxpayers who registered an account and accomplished electronically the auction forms, undertaking, and waivers, including acknowledgement of rules, are reviewed and approved as part of bidders who will participate in the actual auction sale.

When the delinquent taxpayer redeems their property, after settling their account physically at the Treasurer's Office, the authorized system user is provided with a sub-module for processing redemption. The user is again provided with option to install for the first time the various redemption notices and certificates, compliant with the LTOM, and subject to customized design of the LGU. The user can opt to proceed with the manual printing of the notices and certifications for sending out via mail, or process the emailing of the PDF copies to the registered email addresses of the taxpayers.

Under the Billing and Collection module of the Local RPIS, the Treasurer's Office has the option to conduct Tax Impact Simulation, following the procedures prescribed in the MAG. The user must install first the simulation, data which includes the proposed SMV, formula and tax options. Upon completion of the initialization, the user can proceed with the calculation and simulation. They will have the option to generate a comparative report as well as system generated recommendation on what has maximum potential revenue or has the minimal impact to the taxpayers. To fully see the picture of the simulation, the user can process the computation of the potential revenue, which will illustrate the incremental revenue, and impact adjustment, including the analysis.

Relatedly, the users from the Treasurer's Office can proceed to the sub-module for report generation for their reporting requirements, compliant with the LTOM. Lastly, the Treasurer has their own dashboard, allowing them to monitor the various treasury documents pertinent to real property tax for their vetting and approval.

A. LOCAL RPIS Process

1. Valuation and Assessment Process

a. Real Property Automated Valuation/Appraisal Process

- a.1. Initialization of Approved Schedule Market Value (SMV)
- a.2. Initialization of Valuation Formula for land, building and machinery
- a.3. Initialization of Schedule of Depreciation Rates for building, machineries and other improvements and structures
- a.4. Initialization of Valuation Formula for applicable Adjustment Factors
- a.5. Data Gathering

- a.5.1. Collections of Base Source Engineering Controlled Maps
- a.5.2. Collections of Applicable Adjustment Factors
- a.5.3. Collections of Ownership Instruments
- a.5.4. Classification, Sub-Classification and Actual Use
- a.5.5. Other pertinent information that described the real properties
- a.6. Valuation of Data Bank Instruments
 - a.6.1. GPS enabled Mobile device installed with E-Data Collection Sheet
 - a.6.2. Digital conversion of spatial valuation data and information
 - a.6.3. Lazer range finder equipment with link up to EDCS
- a.7. Development of Digitized Tax Map
 - a.7.1. Map of the Philippines
 - a.7.2. Provincial Index Map
 - a.7.3. City and/or Municipal Index Map
 - a.7.4. Barangay Index Map
 - a.7.5. Section Index Map
 - a.7.6. Property Identification Map
- a.8. Processing of Automated Valuation/Appraisal Transaction
 - a.8.1. Subdivision
 - a.8.2. Consolidation
 - a.8.3. New Discovery
 - a.8.4. Transfer
 - a.8.5. Reclassification
 - a.8.6. Reassessment
 - a.8.7. General Revision
 - a.8.8. Improvement/Additional Construction
 - a.8.9. Destruction/Demolition
 - a.8.10. Cancellation
 - a.8.11. Disputes
 - a.8.12. Multiple Assessments
 - a.8.13. Back Taxes
 - a.8.14. Other transactions
- a.9. Application of Approved Schedule of Market Value
 - a.9.1. Unit Value by classification for land and Base Unit Construction Cost for building
 - a.9.2. Area for land and building
 - a.9.3. Original Cost and miscellaneous expense of machinery as guided by the Miscellaneous Provision under the SMV
 - a.9.4. Cost of improvements and other structures valued independently if not provided in the SMV

b. Real Property Assessment Process

- b.1. Initialization of Adopted Assessment Level from Local Ordinance
- b.2. Application of Adopted Assessment Level
- b.3. Development of Assessed Value

c. Taxpayer Information Entry / Updating

- c.1 Entry of Taxpayer Information
 - c.1.1 BIR TIN
 - c.1.2 Taxpayer Name
 - c.1.3 Contact details
 - c.1.4 Citizenship
 - c.1.5 Address
 - c.1.6 Civil Status
 - c.1.7 Taxpayer Type

- c.2 Updating of Taxpayer Information
- c.3 Taxpayer registry report

d. Generation of Accomplished Electronic Assessment Forms

- d.1. Field of Appraisal and Assessment Sheet
- d.2. Tax Declaration
- d.3. Assessment Roll
- d.4. Tax Map Control Roll
- d.5. Notice of Assessment
- d.6. Record of Assessment
- d.7. Owner's Record Form
- d.8. Valuation Reports

e. Maintenance of Technical Tables

- e.1. Owner Type
- e.2. Property Kind
- e.3. Classification
- e.4. Sub-Classification
- e.5. Actual Use
- e.6. Property Restriction
- e.7. Adjustment
- e.8. Adjustment Type
- e.9. Class Level
- e.10. Plant and Trees
- e.11. Building Kind
- e.12. Building Class
- e.13. Building Components
- e.14. Building Materials
- e.15. Building Materials Checklist
- e.16. Building Structure Type
- e.17. Building Extra Items
- e.18. Building GR Values
- e.19. Building GR Kind
- e.20. Machine Group
- e.21. Machine Type
- e.22. Machine Condition
- e.23. Dollar Exchange Rate

f. Certification

- f.1. Certificate with Improvement / No Improvement
- f.2. Certificate of Land Holdings / No Land Holdings
- f.3. Certified True Copy of Tax Declaration

g. Reports

- g.1. Daily Transactions Report
- g.2. Journal of Assessment Transactions (JAT)
- g.3. Journal of Cancelled Assessments (JCA)
- g.4. List of Idle Lands
- g.5. List of Properties (by Classification per Barangay)
- g.6. List of Claimants
- g.7. Properties with Restrictions Statistics
- g.8. Summary of Schedule of Market Values by Sub-Classification
- g.9. Field Appraisal and Assessment Sheets (FAAS)
- g.10. Tax Declaration (TD)
- g.11. Assessment Roll (AR)

- g.12. Assessment Roll by Classification (RACIMTS) Notice of Assessment
- g.13. List of Properties by Classification/Kind per Barangay List of Claimants
- g.14. Ownership Record Form (ORF)
- g.15. Real Property Tax Order of Payment (RPTOP)
- g.16. Tax Map Control Roll (TMCR)
- g.17. Tax Map
- g.18. Monthly Report on Real Property Assessment
- g.19. Quarterly Report on Real Property Assessment (QRRPA)
- g.20. Assess Value, Market Value, Tax Collectibles by Classification/Kind per Barangay
- g.21. Other Statistical Report
- g.22. Certificate with Improvement
- g.23. Certificate with No Improvement
- g.24. Certificate of Land Holding
- g.25. Other Certification Reports
- g.26. Other Reports

h. Assessor's Dashboard

- h.1. Component City/Municipal Assessor
 - h.1.1 Recommending approval
 - h.1.2 Transmittal/Endorsement to Provincial Assessor
 - h.1.3 Transmittal Proposed SMV
 - h.1.4 Status monitoring
- h.2. Provincial Assessor
 - h.2.1 Notification of Pending for Approval
 - h.2.2 Review, approval, and rejection of the report
 - h.2.3 Transmittal Proposed SMV
 - h.2.4 Summary report

2. Billing and Collection Process

a. Billing Process

- a.1. Installation of Real Property Tax Record
 - a.1.1 Assessment Roll (AR)
 - a.1.2 Real Property Tax Assessment Record (RPTAR)
- a.2. Installation of Formula in the Computation of:
 - a.2.1 Tax Due (Basic and Special Education Fund)
 - a.2.2 Discounts
 - a.2.3 Penalties and Interest
 - a.2.4 Idle Land Tax and Other Levy on top of Basic and Special Education Fund
- a.3. Installation of the following documents:
 - a.3.1 Notice of Time for the Collection of Tax
 - a.3.2 Notice of Tax Bill / RPT SOA
 - a.3.3 Notice of Delinquencies
 - a.3.4 Proof of Service
- a.4. Taxpayer Billing
 - a.4.1 Manual Billing
 - a.4.1.1 Printing of Notices of Tax Bill/ RPT SOA
 - a.4.1.2 Printing of Notices of Delinquencies
 - a.4.1.3 Sending of Notices and Proof of Service
 - a.4.2 Electronic Billing
 - a.4.2.1 Portable Document Format (PDF) of Notices of Tax Bill/RPT SOA
 - a.4.2.2 PDF of Notices of Delinquencies
 - a.4.2.3 Sending of Email Notices and Proof of Service
 - a.4.3 Mobile Billing Application

- a.4.3.1 Treasury
 - a.4.3.1.1 Installation of Mobile Application
 - a.4.3.1.2 Approval of User Registration
- a.4.3.2 User
 - a.4.3.2.1 Download of Mobile Application
 - a.4.3.2.2 Registry Application of User Account
 - a.4.3.2.3 Online Statement and Notices
 - a.4.3.2.3.1 PDF of Notices of Tax Bill/RPT SOA
 - a.4.3.2.3.2 PDF of Notices of Delinquencies and Proof of Service
- a.4.4 E-Kiosk / Web Portal
 - a.4.4.1 Treasury
 - a.4.4.1.1 Installation of Web Portal
 - a.4.4.1.2 Approval of User Registration
 - a.4.4.1.3 Report Generation of Taxpayers and Collection
 - a.4.4.2 User
 - a.4.4.2.1 Registry Application of User Account
 - a.4.4.2.2 Online Statement and Notices
 - a.4.4.2.3.1 PDF of Notices of Tax Bill/RPT SOA
 - a.4.4.2.3.2 PDF of Notices of Delinquencies
 - a.4.4.2.4 Printing of Notices and Proof of Service

b. Collection Process

- b.1 Installation of the following:
 - b.1.1 Electronic Payment Linkage
 - b.1.1.1 Online Banking
 - b.1.1.2 Credit/Debit Card
 - b.1.1.3 E-Wallet (GCash/PayMaya)
 - b.1.1.4 Payment Center
 - b.1.2 Official Receipts
 - b.1.3 Real Property Tax Clearance
 - b.1.4 Journal of Real Property Tax Collection
- b.2 Payment
 - b.2.1 Mobile Application
 - b.2.1.1 Treasury
 - b.2.1.1.1 Report Generation of Taxpayers and Collection
 - b.2.1.2 User
 - b.2.1.3 Remittance of Payment via payment channels
 - b.2.1.3.1 Online Banking
 - b.2.1.3.2 Credit/Debit Card
 - b.2.1.3.3 E-Wallet (GCash/PayMaya)
 - b.2.1.3.4 Payment Center
 - b.2.2 E-Kiosk / Web Portal
 - b.2.2.1 Treasury
 - b.2.2.1.1 Report Generation of Taxpayers and Collection
 - b.2.2.2 User
 - b.2.2.3 Remittance of Payment via payment channels
 - b.2.2.3.1 Online Banking
 - b.2.2.3.2 Credit/Debit Card
 - b.2.2.3.3 E-Wallet (GCash/PayMaya)
 - b.2.1.3.4 Payment Centers
- b.3 Acknowledgement of Payment
 - b.3.1 Issuance of Official Receipt to Property Taxpayer
 - b.3.2 Issuance of Acknowledgement Receipt
 - b.3.2.1 Manual

- b.3.2.1.1 Printing of Acknowledgement Receipt
 - b.3.2.1.2 Sending of Acknowledgement Receipt
 - b.3.2.2 Electronic
 - b.3.2.2.1 PDF of Acknowledgement Receipt
 - b.3.2.2.2 Sending of Email Acknowledgement Receipt
- b.4 Recording
 - b.4.1 Updating and Recording of Tax Payment in the Real Property Tax Account Register (RPTAR)
 - b.4.2 Recording of Tax Payment Journal of Real Property Tax Collection
- b.5 Certification
 - b.5.1 Full Payment
 - b.5.2 Real Property Tax Clearance Certificate
- b.6 Bank Reconciliation

c. Auction Process

- c.1 Installation of the following:
 - c.1.1 Notices, Reports & Certificates
 - c.1.1.1 Final Notice before Issuance of Warrant of Distraint and Levy
 - c.1.1.2 Non-Presentation of Documents
 - c.1.1.3 Letter of Confirmation
 - c.1.1.4 Certificate of Confirmation
 - c.1.1.5 Certificate of Examination
 - c.1.1.6 Notice of Real Property Tax Delinquency (1st, 2nd, 3rd, Final)
 - c.1.1.7 Warrant of Levy
 - c.1.1.8 Notice of Levy
 - c.1.1.9 Notice of Auction Sale
 - c.1.1.10 Notice of Sale
 - c.1.1.11 Certificate of Sale
 - c.1.1.12 Declaration of Forfeiture of Delinquent Property
 - c.1.1.13 Final Deed of Sale
 - c.1.2 Installation of Real Property Tax Record
 - c.1.2.1 List of Delinquent Properties
 - c.1.2.2 List of Properties for Auction Sale
 - c.1.3 Installation of Auction Documents
 - c.1.3.1 Public Auction Registration Form
 - c.1.3.2 Undertaking and Waiver of Bidders
- c.2 Notices to Taxpayer
 - c.2.1 Manual Notification
 - c.2.1.1 Printing of Notices of
 - c.2.1.1.1 Final Notice before Issuance of Warrant of Distraint and Levy
 - c.2.1.1.2 Non-Presentation of Documents
 - c.2.1.1.3 Letter of Confirmation
 - c.2.1.1.4 Certificate of Confirmation
 - c.2.1.1.5 Certificate of Examination
 - c.2.1.1.6 Notice of Real Property Tax Delinquency (1st, 2nd, 3rd, Final)
 - c.2.1.1.7 Warrant of Levy
 - c.2.1.1.8 Notice of Levy
 - c.2.1.1.9 Notice of Auction Sale
 - c.2.1.1.10 Certificate of Sale
 - c.2.1.1.11 Declaration of Forfeiture of Delinquent Property
 - c.2.1.2 Sending of Notices
 - c.2.2 Electronic Notification
 - c.2.2.1 PDF copies of

- c.2.2.1.1 Final Notice before Issuance of Warrant of Distrainment and Levy
 - c.2.2.1.2 Non-Presentation of Documents
 - c.2.2.1.3 Letter of Confirmation
 - c.2.2.1.4 Certificate of Confirmation
 - c.2.2.1.5 Certificate of Examination
 - c.2.2.1.6 Notice of Real Property Tax Delinquency
 - c.2.2.1.7 Warrant of Levy
 - c.2.2.1.8 Notice of Levy
 - c.2.2.1.9 Notice of Auction Sale
 - c.2.2.1.10 Notice of Sale
 - c.2.2.1.11 Certificate of Sale
 - c.2.2.1.12 Declaration of Forfeiture of Delinquent Property
 - c.2.2.2 Sending of Email Notices
- c.3 Registration of Bids
 - c.3.1 Treasury
 - c.3.1.1 Installation of Web Portal
 - c.3.1.2 Approval of User Registration/Bidders
 - c.3.1.3 Generation of List of Registered Bidders
 - c.3.2 User
 - c.3.2.1 Registry Application of User Account
 - c.3.2.2 Accomplished Public Auction form
 - c.3.2.3 Accomplished Undertaking and Waiver of Bidders
 - c.3.2.4 Acknowledged Rules and Regulations of Public Auction

d. Redemption Process

- d.1 Installation of the following:
 - d.1.1 Notices & Certificate
 - d.1.1.1 Redemption
 - d.1.1.2 Right to Redeem
 - d.1.1.3 Full Payment
 - d.1.1.4 Sale
 - d.1.1.5 Real Property Tax Clearance Certificate
 - d.1.1.6 Cancellation of Warrant of Levy
- d.2 Notice of Redemption
 - d.2.1 Manual Notification
 - d.2.1.1 Printing of Notices and Certificate of
 - d.2.1.1.1 Redemption
 - d.2.1.1.2 Right to Redeem
 - d.2.1.1.3 Full Payment
 - d.2.1.1.4 Sale
 - d.2.1.1.5 Real Property Tax Clearance Certificate
 - d.2.1.1.6 Cancellation of Warrant of Levy
 - d.2.1.2 Sending of Notices
 - d.2.2 Electronic Notification
 - d.2.2.1 PDF of Notices
 - d.2.2.1.1 Redemption
 - d.2.2.1.2 Right to Redeem
 - d.2.2.1.3 Full Payment
 - d.2.2.1.4 Sale
 - d.2.2.1.5 Real Property Tax Clearance Certificate
 - d.2.2.1.6 Cancellation of Warrant of Levy
 - d.2.2.2 Sending of Email Notices

e. Tax Impact Simulation

- e.1 Installation Simulation data
 - e.1.1 Proposed SMV
 - e.1.2 Formula
 - e.1.2.1 Incremental Real Property Tax
 - e.1.2.2 Percentage Increase
 - e.1.3 Tax Options
 - e.1.3.1 Reduction of Assessment Level
 - e.1.3.2 Reduction of Tax Rate
 - e.1.3.3 Reduction of Assessment Level and Tax Rate
- e.2 Calculation of Tax Impact
 - e.2.1 Application of Formula
 - e.2.2 Simulation of Tax Options
 - e.2.2.1 Reduced Assessment Level
 - e.2.2.2 Reduced Tax Rate
 - e.2.2.3 Reduced Assessment Level and Tax Rate
- e.3 Analysis of Tax Impact
 - e.3.1 Generation of Comparative Report
 - e.3.2 Automated Recommendation
 - e.3.2.1 Maximum Potential Revenue
 - e.3.2.2 Minimal Taxpayer Impact
- e.4 Potential Revenue Computation
 - e.4.1 Generation of Summary of Revenue
 - e.4.1.1 Based on Approved SMV
 - e.4.1.2 Based on Proposed SMV
 - e.4.2 Incremental Revenue Computation
 - e.4.3 Revenue Impact Adjustment
 - e.4.3.1 Compliance Ratio/Collection Efficiency
 - e.4.3.2 Discounts
 - e.4.3.3 Fines and Penalties
 - e.4.3.4 Tax Incentives
 - e.4.4 Analysis
 - e.4.4.1 Application of Revenue Impact on Tax Option
 - e.4.4.2 Generation of Summary
 - e.4.4.2.1 As to Property Classification
 - e.4.4.2.2 As to Barangay
- e.5 Uploading of the SMV (Simulated, Proposed or Approved)

f. Reports

- f.1. Daily Transactions Report
- f.2. Abstract of Real Property Tax Receipts
- f.3. Real Property Tax Collection by Teller (Basic and SEF)
- f.4. Report of Collection and Deposit (RCD)
- f.5. Real Property Tax Account Register (RPTAR)
- f.6. Delinquent Accounts
- f.7. Real Property Tax Order of Payment (RPTOP)
- f.8. Notice of Assessment and Tax Bill (NATB)
- f.9. Real Property Tax Official Receipts (AF#56) Issuance
- f.10. Tax Reminders
- f.11. Notice of Delinquency
- f.12. Notice of Property for Auction
- f.13. Properties for Auction
- f.14. Final Demand Letter
- f.15. Certificate of Sale of Delinquent Property
- f.16. Certificate of Sale

- f.17.Certificate of Redemption
- f.18.Certificate of Full Payment
- f.19.Notice of Right to Redeem
- f.20.Notice of Redemption
- f.21.Final Bill of Sale
- f.22.Barangay Share Report
- f.23.Monthly Collection Report
- f.24.Quarterly Collection Report
- f.25.Annual Comparative Efficiency Report
- f.26.Certification of Property Tax Payment
- f.27. Statement of Real Property Collections
- f.28. Summary of Barangay shares in the RPTA
- f.29. Summary of Interest payments on Real Property Tax
- f.30. Summary of Surcharge payments on Real Property Tax
- f.31. Report of Levy
- f.32. Report of Sale
- f.33. Other Reports

g. Treasurer's Dashboard

- g.1 Component City/Municipal Treasurer
 - g.1.1 Recommending Approval
 - g.1.2 Transmittal/Endorsement to Provincial Treasurer
 - g.1.3 Status Monitoring
- g.2 Provincial Treasurer
 - g.2.1 Notification of Pending for Approval
 - g.2.2 Review, approval, and rejection of the report
 - g.2.3 Summary report

With regards to the Central RPIS, the modules include Data Warehousing, NGA to LGU transaction and vice versa, and the Transparency portal, which collectively facilitates the data sharing and information access depending on user access level. The system incorporates in the data warehouse the pertinent real property information from NGA such as BIR, BSP, DAR, DENR, DHSUD, LRA, NCIP, PRC, and the LGU Assessor's Offices through an API, depending on the DSA with the BLGF.

The private real estate practitioner is also provisioned with the option of submitting their appraisal and sales data in the system, in exchange of earning credits for redeeming with the BLGF's PRC recognized CPD trainings. This is notwithstanding the option for real estate brokers to publish and advertise their listings for sale. They are provided with an account to register and log-in to, whether as an individual, company or an association/organization, wherein, to ensure full compliance with the RESA, the BLGF is able to match and verify their registration with PRC prior to the approval of registration to the system. The registered real estate practitioner is then directed to a dashboard that allows them to upload property information and market values.

The same can be made by registered bank users, as they are also given a dashboard for their submission of appraisal information from their appraisal and bank assets. Likewise, they get to earn also credits for redeeming with the BLGF's PRC-recognized CPD trainings.

Another module in the Central RPIS, the NGA-LGU transaction and vice versa, provides the authorized users, secured access log-in, that gives them the option to query in the data warehouse certain property information for their comparison with their documents being verified. The users are also given an option to request and print/download a Certified True Copy of the document. The information and documents made available are subject to DSA and DPA.

Lastly, the Transparency portal module provides dashboards for real estate practitioners, bank appraisers, and the general public for canvass of limited property information. Real estate practitioners and bank appraisers already with an account in the system, are given the facility to canvass appraisal data, sales data, and lease & rental data, which are culled from the submissions in the data warehouse from their counterpart real estate practitioners, bank appraisers, NGA, and LGU Assessor's Offices, with consideration of DSA and DPA. The general public on other hand can outright perform query in the system for property for sale and sold, for lease or leased, including rentals, allowing them the option to contact and transact with real estate practitioners who are licensed by PRC and registered with DHSUD (when applicable, such as real estate brokers).

Further, the public can access viewing of SMV, with query they can customize as to location and year or period, including historical data. A sub-module for analytics generates price indices, trend, and variance, which produces tables and graphs for public consumption and guidance.

B. CENTRAL RPIS Process

1. Data Warehouse Process

a. NGA Data integration

a.1 Bureau of Internal Revenue

a.1.1 Installation of API

a.1.2 Integration of Tax information

a.1.2.1 eCAR Number

a.1.2.2 Date Issued

a.1.2.3 Title Number

a.1.2.4 Seller's Name

a.1.2.5 Seller's TIN

a.1.2.6 Seller's Address

a.1.2.7 Buyer's Name

a.1.2.8 Buyer's Address

a.1.2.9 Buyer's TIN

a.1.2.10 Property Location

a.1.2.11 Selling Price

a.1.2.11.1 Amount in Consideration of Land

a.1.2.11.2 Amount in Consideration of Improvement/Structure

a.1.2.12 Date of Sale

a.1.2.13 Name of Signatories in Extra-judicial Settlement

a.1.2.14 Mode of Conveyance

a.1.2.15 Land Area

a.1.2.16 Floor Area of Improvement/Structure

a.1.3 Assignment/Matching of ID

a.2. Land Registration Authority

a.2.1 Installation of API

a.2.2 Integration of Property Information

a.2.2.1 Title Number

a.2.2.2 Date Registered

a.2.2.3 Property Location

a.2.2.4 Transferor's Name

a.2.2.5 Transferor's TIN

a.2.2.6 Transferor's Address

a.2.2.7 Transferee's Name

a.2.2.8 Transferee's TIN

- a.2.2.9 Transferee's Address
 - a.2.2.10 Selling Price
 - a.2.2.10.1 Amount in Consideration of Land
 - a.2.2.10.2 Amount in Consideration of Improvement/Structure
 - a.2.2.11 Encumbrances/Lien
 - a.2.2.12 Land Area
 - a.2.2.13 Floor Area of Improvement/Structure
- a.2.3 Assignment/Matching of Unified Property ID
- a.3. Department of Environment and Natural Resources
 - a.3.1 Installation of API
 - a.3.2 Integration of Property Information
 - a.3.2.1 Title Number
 - a.3.2.2 Date Issued
 - a.3.2.3 Property Location
 - a.3.2.4 Transferee's Name
 - a.3.2.5 Transferee's TIN
 - a.3.2.6 Transferee's Address
 - a.3.2.7 Selling Price for Miscellaneous Sales
 - a.3.2.7.1 Amount in Consideration of Land
 - a.3.2.8 Other Mode of Conveyance
 - a.3.2.9 Type of Survey
 - a.3.2.10 Survey Number
 - a.3.2.11 Land Area
 - a.3.3 Assignment/Matching Property ID
- a.4. Department of Agrarian Reform
 - a.4.1 Installation of API
 - a.4.2 Integration of Property Information
 - a.4.2.1 Title Number
 - a.4.2.2 Date Issued
 - a.4.2.3 Property Location
 - a.4.2.4 Transferee's Name
 - a.4.2.5 Transferee's TIN
 - a.4.2.6 Transferee's Address
 - a.4.2.7 Selling Price
 - a.4.2.7.1 Amount in Consideration of Land
 - a.4.2.8 Other Mode of Conveyances
 - a.4.2.9 Land Area
 - a.4.3 Assignment/Matching Property ID
- a.5. National Commission on Indigenous People
 - a.5.1 Installation of API
 - a.5.2 Integration of Property Information
 - a.5.2.1 Title Number
 - a.5.2.2 Date Issued
 - a.5.2.3 Property Location
 - a.5.2.4 Transferee's Name
 - a.5.2.5 Transferee's TIN
 - a.5.2.6 Transferee's Address
 - a.5.2.7 Name of Indigenous Group
 - a.5.2.8 Other Mode of Conveyances
 - a.5.2.9 Survey Number
 - a.5.2.10 Land Area
 - a.5.3 Assignment/Matching Property ID

- a.6. Department of Human Settlements and Urban Development
 - a.6.1 Installation of API
 - a.6.2 Integration of Property Information
 - a.6.2.1 Name of transacting real estate broker/appraiser/consultant/salesperson
 - a.6.2.2 DHSUD Registration Number of transacting real estate broker/appraiser/consultant/salesperson
 - a.6.2.3 Real estate practitioner's TIN
 - a.6.2.4 Buyer's Name
 - a.6.2.5 Buyer's TIN
 - a.6.2.6 Buyer's Address
 - a.6.2.7 Property Location
 - a.6.2.8 Developer's Name
 - a.6.2.9 Schedule of Selling Price per unit
 - a.6.2.10 Date of Sale
 - a.6.3 Assignment/Matching of Property ID
- a.7. Professional Regulation Commission
 - a.7.1 Installation of API
 - a.7.2 Integration of Real Estate Professional information
 - a.7.2.1 License Number / Registry Number
 - a.7.2.2 Date Issued
 - a.7.2.3 Date Expiry
 - a.7.2.4 Broker/Appraiser/Consultant/Salesperson Name
 - a.7.2.5 Accredited Lecturer on Real Estate
 - a.7.2.5.1 Accreditation Number
 - a.7.2.5.2 Date of Issuance
 - a.4.2.5.3 Date of Expiration
- a.8. Bangko Sentral ng Pilipinas
 - a.8.1 Installation of API
 - a.8.2 Integration of Real Estate Professional Information
 - a.8.2.1 Accreditation Number
 - a.8.2.2 Name of Accredited Appraiser/Entity
 - a.8.2.3 Date Issuance
 - a.8.2.4 Date Expiry

b. LGU Data Integration

- b.1 Installation of API
- b.2 Integration of Property Information
 - b.2.1 Tax Declaration Number
 - b.2.2 Property Identification Number
 - b.2.3 Transferor's Name
 - b.2.4 Transferor's TIN
 - b.2.5 Transferor's Address
 - b.2.6 Transferee Name
 - b.2.7 Transferee TIN
 - b.2.8 Transferee Address
 - b.2.9 Property Location
 - b.2.10 Market Value
 - b.2.10.1 Land
 - b.2.10.2 Building
 - b.2.10.3 Machinery
 - b.2.10.4 Assessed Value

- b.2.10.4.1 Land
 - b.2.10.4.2 Building
 - b.2.10.4.3 Machinery
 - b.2.10.5 Land Area
 - b.2.10.6 Floor Area
 - b.2.10.7 Original cost of machinery
 - b.2.10.8 Age of Real Property
 - b.2.10.8.1 Building
 - b.2.10.8.2 Machinery
 - b.2.10.9 Date of occupation of the Building
 - b.2.10.10 Date of acquisition of Machinery
 - b.2.10.11 Date of operation of Machinery
 - b.2.10.12 Date of stoppage of Machinery
 - b.2.10.13 Structural Type of Building
 - b.2.10.14 Rate of Depreciation
 - b.2.10.14.1 Building
 - b.2.10.14.2 Machinery
 - b.2.10.15 Classification of Real Property
 - b.2.10.16 Sub-Classification of Real Property
 - b.2.10.17 Actual Use of Real Property
 - b.2.10.18 Taxability of Real Property
 - b.2.10.19 Applicable Adjustment Factors
 - b.2.10.20 Historical Record of Real Property Declarations
 - b.2.10.21 Type of Transactions (Simple transfer, subdivision, etc.)
- b.2.11 Assignment/Matching of Property ID

c. Private Real Estate Practitioner's Data Integration

- c.1. BLGF
 - c.1.1 Matching of Applicant User with PRC database
 - c.1.1.1 Individual
 - c.1.1.2 Company
 - c.1.1.3 Association
 - c.1.2 Approval of User Registration
 - c.1.3 Generation of List of Registered Users
- c.2 User
 - c.2.1 Application of User Account
 - c.2.2 Upload of Data
 - c.2.2.1 Property Data
 - c.2.2.1.1 Tax Declaration Number
 - c.2.2.1.2 Title Number
 - c.2.2.1.3 Transferor's Name
 - c.2.2.1.4 Transferor's TIN
 - c.2.2.1.5 Transferor's Address
 - c.2.2.1.6 Transferee Name
 - c.2.2.1.7 Transferee TIN
 - c.2.2.1.8 Transferee Address
 - c.2.2.1.9 Property Location
 - c.2.2.1.10 Property Type
 - c.2.2.1.11 Market Value / Sales / Lease /Rental Price
 - c.2.2.1.11.1 Land
 - c.2.2.1.11.2 Building
 - c.2.2.1.11.3 Machinery
 - c.2.2.1.12 Real Estate Practitioner Transaction type
 - c.2.2.1.12.1 Appraisal
 - c.2.2.1.12.1.1 Appraisal Date

- c.2.2.1.12.1.2 Valuation approach
 - c.2.2.1.12.1.3 Purpose of Appraisal
 - c.2.2.1.12.2 Sales
 - c.2.2.1.12.2.1 Reason for sale
 - c.2.2.1.12.2.2 Features or amenities
 - c.2.2.1.12.2.3 Sales date
 - c.2.2.1.12.3 Lease
 - c.2.2.1.12.3.1 Lease date
 - c.2.2.1.12.3.2 Features or amenities
 - c.2.2.1.12.3.3 Lease period
 - c.2.2.1.12.4 Rental
 - c.2.2.1.12.4.1 Rental price
 - c.2.2.1.12.4.2 Rental date
 - c.2.2.1.12.4.3 Machinery Type
 - c.2.2.1.12.4.4 Make
 - c.2.2.1.12.4.5 Rental period
 - c.2.2.1.13 Other Property Transaction Data
- c.2.3 Points Accumulation for Free CPD Training
 - c.2.3.1 Balance Credit
 - c.2.3.2 Redemption
 - c.2.3.2.1 Calendar of CPD Training
 - c.2.3.2.2 Sign up for Training
 - c.2.3.3 Record of CPD Training availed

d. Bank Data Integration

- d.1 BLGF
 - d.1.1 Approval of User Registration
 - d.1.2 Generation of List of Registered Users
- d.2 User
 - d.2.1 Application of User Account
 - d.2.2 Upload of Data
 - d.2.2.1 Property Data
 - d.2.2.1.1 Property Location
 - d.2.2.1.2 Property Type
 - d.2.2.1.3 Property Classification
 - d.2.2.1.4 Land Area
 - d.2.2.1.5 Floor Area
 - d.2.2.1.6 Machinery Make
 - d.2.2.1.7 Age of Real Property
 - d.2.2.2.7.1 Building
 - d.2.2.2.7.2 Machinery
 - d.2.2.2.8 Structural Type of Building
 - d.2.2.2.9 Rate of Depreciation
 - d.2.2.2.9.1 Building
 - d.2.2.2.9.2 Machinery
 - d.2.2.2.10 Market Value
 - d.2.2.2.10.1 Land
 - d.2.2.2.10.2 Building
 - d.2.2.2.10.3 Machinery
 - d.2.2.2.11 Area
 - d.2.2.2.11.1 Land
 - d.2.2.2.11.2 Building
 - d.2.2.2.12 Appraisal Date
 - d.2.3 Points Accumulation for Free CPD Training
 - d.2.3.1 Balance Credit

- d.2.3.2 Redemption
 - d.2.3.2.1 Calendar of CPD Trainings
 - d.2.3.2.2 Sign up for Training
- d.2.3.3 Record of CPD Trainings availed

2. NGA-LGU Transactional Process

a. NGA to LGU Verification

- a.1 Query
 - a.1.1 Property ID
 - a.1.2 Tax Declaration Number
 - a.1.3 Property Identification Number
 - a.1.4 Transferor's Name
 - a.1.5 Transferor's TIN
 - a.1.6 Transferor's Address
 - a.1.7 Transferee Name
 - a.1.8 Transferee TIN
 - a.1.9 Transferee Address
 - a.1.10 Property Location
 - a.1.11 Title Number
- a.2 Certified True Copy
 - a.2.1 Tax Declaration
 - a.2.2 Deed of Sale attached
 - a.2.3 eCAR attached
 - a.2.4 Title attached
 - a.2.5 Real Property Tax Clearance
 - a.2.6 Certificate of with Improvement / No Improvement
 - a.2.7 Certificate of Land Holdings / No Land Holdings

b. LGU to NGA Verification

- b.1 Query
 - b.1.1 Property ID
 - b.1.2 Owner's Name
 - b.1.3 Owner's TIN
 - b.1.4 Owner's Address
 - b.1.5 Property Location
 - b.1.6 Title Number
- b.2 Certified True Copy
 - b.2.1 Title
 - b.2.2 Deed of Sale
 - b.2.3 eCAR

3. Transparency Portal

a. Real Estate Practitioner Canvass

- a.1 Appraisal Data
 - a.1.1 Market Value
 - a.1.2 Property Type
 - a.1.3 Property Classification
 - a.1.4 Appraisal Date
 - a.1.5 Valuation Approach
 - a.1.6 Purpose of Appraisal
- a.2 Sales Data
 - a.2.1 Sales price
 - a.2.1.1 Land
 - a.2.1.2 Building
 - a.2.2 Sales date
 - a.2.3 Property Type
 - a.2.4 Property Classification

- a.2.5 Reason for Sale
 - a.2.6 Features or Amenities
- a.3 Lease Data
 - a.3.1 Lease price
 - a.3.2 Lease date
 - a.3.3 Property Type
 - a.3.4 Property Classification
 - a.3.5 Lease period
 - a.3.6 Features or amenities
- a.4 Rental Data
 - a.4.1 Rental price
 - a.4.2 Rental date
 - a.4.3 Machinery Type
 - a.4.4 Make
 - a.4.5 Rental period
- b. Bank Canvass**
 - b.1 Property Location
 - b.2 Property Type
 - b.3 Property Classification
 - b.4 Land Area
 - b.5 Floor Area
 - b.6 Machinery Make
 - b.7 Age of Real Property
 - b.7.1 Building
 - b.7.2 Machinery
 - b.8 Structural Type of Building
 - b.9 Rate of Depreciation
 - b.9.1 Building
 - b.9.2 Machinery
 - b.10 Market Value
 - b.10.1 Land
 - b.10.2 Building
 - b.10.3 Machinery
 - b.11 Appraisal Date
 - b.12 Source
 - b.12.1 Private Real Estate Practitioner
 - b.12.2 Bank
 - b.12.3 Assessor's Office
- c. Public Canvass**
 - c.1 Query
 - c.1.1 For Sale Data
 - c.1.1.1 Location
 - c.1.1.2 Property Type
 - c.1.1.3 Property Classification
 - c.1.1.4 Lot Area
 - c.1.1.5 Floor Area
 - c.1.1.6 Listing Date
 - c.1.1.7 Reason for sale
 - c. 1.2. For Lease
 - c.1.2.1 Location
 - c.1.2.2 Property Type
 - c.1.2.3 Property Classification
 - c.1.2.4 Lot Area

- c.1.2.5 Floor Area
- c.1.2.6 Listing Date
- c.1.2.7 Lease period

- c. 1.3 Rental
 - c.1.3.1 Machinery Type
 - c.1.3.2 Make
 - c.1.3.3 Rental Price
 - c.1.3.4 Listing Date
 - c.1.3.5 Rental Period

d. SMV Viewing

- d.1. Query
 - d.1.1 Location
 - d.1.2 Year/Period
 - d.1.2.1 Current
 - d.1.2.2 Historical

e. Analytics

- e.1. Price Index
 - e.1.1 Residential
 - e.1.2 Commercial
 - e.1.3 Industrial
 - e.1.4 Construction Cost
- e.2. Price Trend
 - e.2.1 Retrospect
 - e.2.2 Prospective
- e.3. Price variance per period
 - e.3.1 Percentage increase/decrease
 - e.3.2 Year to year
 - e.3.3 Quarter to quarter
- e.4 SMV Updating
 - e.4.1 Updated LGUs
 - e.4.2 Outdated LGUs
 - e.4.3 Aggregate Market Value
 - e.4.3.1 National
 - e.4.3.2 Regional
 - e.4.3.3 Provincial
 - e.4.4 Aggregate Assessed Value
 - e.4.4.1 National
 - e.4.4.2 Regional
 - e.4.4.3 Provincial
 - e.4.5 RPT Collection
 - e.4.5.1 Aggregate RPT Collection
 - e.4.5.1.1 National
 - e.4.5.1.2 Regional
 - e.4.5.1.3 Provincial
 - e.4.5.2 Aggregate RPT Collection Target
 - e.4.5.2.1 National
 - e.4.5.2.2 Regional
 - e.4.5.2.3 Provincial
 - e.4.5.3 Aggregate Forgone RPT Revenue
 - e.4.5.3.1 National
 - e.4.5.3.2 Regional
 - e.4.5.3.3 Provincial

C. GIS Process

a. Data Management

- a.1 Data Acquisition
- a.2 Data Processing
- a.3 Data Analysis

b. Map Generation

- b.1 Map Processing
- b.2 Map Overlaying

c. Map Viewing

- c.1. Base Map
 - c.1.1 Google Map
 - c.1.2 Open Street Map
 - c.1.3 NAMRIA Base Map
 - c.1.4 Satellite Imagery
- c.2 Assessment Filter
 - c.2.1 Residential
 - c.2.2 Agricultural
 - c.2.3 Commercial
 - c.2.4 Industrial
 - c.2.5 Mineral
 - c.2.6 Timber
 - c.2.7 Special
- c.3 Land Use Filter
- c.4 Market Value Filter
- c.5 Hazzard Filter
 - c.5.1 Seismic
 - c.5.1.1 Active Faults
 - c.5.1.2 Liquefaction
 - c.5.1.3 Tsunami
 - c.5.2 Volcanic
 - c.5.2.1 Active Volcano
 - c.5.2.2 Lahar Flow
 - c.5.2.3 Hydro-Meteorological
 - c.5.2.4 Storm Surge
 - c.5.2.5 Flooding
 - c.5.2.6 Landslide
- c.6 Sale History Information
- c.7 Zoning
- c.8 Time lapse and Snapshot

IX. TASKS OF THE FIRM

- a. Conduct consultations with the BLGF, selected LGUs, partner NGAs and other stakeholders for the purpose of designing the system;
- b. Draft the work plan with schedule of deliverables; ensuring at least 50% of women's participants in this consultation and all other consultations, workshops, and training performed under the terms of reference (TOR);
- c. Schedule and conduct workshops to generate and gather comments and recommendations;
- d. Finalize the work plan and schedule for the approval of the BLGF, and submit it as the Inception Report;
- e. Design, develop, code, and install the system components and enhancements in the BLGF and ten (10) selected LGUs, as provided in the Bid Document and Contract;

- f. Development of Transparency Portal (new BLGF Website), which includes the migration of the existing BLGF Website;
- g. Responsible for data migration or encoding and cleanup of the real property database of the ten (10) selected LGUs;
- h. Update/create GIS/GPS Inventory Sheet;
- i. Introduce geo-location capturing in all kinds of survey forms and build digital format for software used;
- j. Prepare technical specification and list of materials for implementation of the GIS system;
- k. Process GPS data and conversion to GIS data format;
- l. Verify accuracy of field data of geographical locations;
- m. Keep records and correct erroneous data;
- n. Upload/digitize map;
- o. Process geo-referenced image information;
- p. Prepare Base Maps;
- q. Conduct stress tests on the system components, including the document issues, problems, and errors;
- r. Prepare a report for the approval of the BLGF on the adjustments and corrections needed to address the issues, problems, and errors in the system;
- s. Institute the approved correction and remedies to address the issues, problems, and errors in the system;
- t. Conduct a final workshop to present the system components and enhancements;
- u. Prepare and finalize the comprehensive administrator and user manuals; ensure the use of gender-fair language therein;
- v. Evaluate current IT equipment of concerned agencies related to RPIS, make recommendations to procure, update or replacement of obsolete equipment including its brief technical description;
- w. Conduct training on the system component to selected BLGF central and regional office personnel;
- x. Assist BLGF in securing commercially or open-source available software and link the system components to the RPIS and GIS based database.
- y. Submit all documentation to the BLGF including but not limited to source codes with sufficient comment, data dictionary, system documentation, user, administrator, risk management, risk management plan, communication plan, business continuity plan, and versioning of the technical documentations, maintenance and all other manuals;
- z. Provide after-sales service or support as agreed upon in the Bid Document and Contract;
- aa. Provide web service guide; and
- bb. Ensure all genders are represented as part of the project team.

X. DELIVERABLES

- a. Inception Report (detailed software development work plan with milestones) (*month 1*)
- b. Initial draft system design; (*month 1*)
- c. Final system design; (*month 2*)
 - 1. System Requirement Specification (SRS) document containing detailed requirements, Interface Specifications, and Application Security Requirements captured based on User and Functional requirement gathering exercise conducted by the FIRM with each LGU and partner Agency
 - 2. High Level Software Design Document including Software Architecture Design, Logical and Physical Database Design (E-R Diagrams)
 - 3. Low Level Software Design document including Programming Logic, Work Flow, Data Flow Diagrams (DFDs)
 - 4. Security Level Design document

- d. Series of Trainings and Workshops (*month 3 – 21*)
- e. System's modular installation with User Acceptance Testing (UAT) and resolve issues. (*month 3 to month 21*)
 - 1. Test Plans and Test cases (including Unit Test Plan, System/Integration Test Plan, User Acceptance Test Plan, Security Test Plan, Load Test Plan, Regression Test Plan)
 - 2. Unit Testing
 - 3. Load Testing
 - 4. Integration Testing
 - 5. Implementation of Security Policy
 - 6. Testing Documentation (including details of defects/bugs/errors and their resolution)
 - 7. All database and test scripts
 - 8. Setup and Release notes for each new release
- f. Training, Users and Administrators Manuals (*month 3-21*)
- g. Development of dynamic GIS Website (*month 3-21*)
- h. Submission of base map, key map and detail map with master plan (*month 3-21*)
- i. Training Report on GIS training and related software and Website (*month 3-21*)
- j. Establish a complete GIS-based management system (*month 3-21*)
- k. Well-documented Source Codes with proper descriptions and comments, data dictionary and other system documentation (*month 21*);
- l. System components and modules installed in the BLGF and selected LGUs, as provided in the Bid Document and Contract listed but not limited to the items below:

1. LOCAL RPIS (*Beta Version – month 5, Final Version – month 21*)

The system caters to real property assessment, billing, and collection, relative to the digital implementation of Real Property Tax Administration, compliant with the Manual on Real Property Appraisal and Assessment Operation (MRPAAO) and the Local Treasurer's Operation Manual (LTOM). Features computerized Real Property Tax Administration (RPTA), which includes automated valuation and assessment, tax mapping, generation of electronic assessment forms, printing and issuance of certifications and reports, as well as dashboard for approval of assessment forms in the municipal or city level and in provincial level. Also, will feature computerized billing and collection, which includes automated billing, collection, auction, redemption and issuance of certifications and reports, as well as dashboard for approval of assessment forms in the municipal or city level and in provincial level.

A. CENTRAL RPIS WITH TRANSPARENCY PORTAL (*Beta Version – month 5, Final Version – month 21*)

The system provides a data sharing platform as it features integration of data from partner NGA, Assessor's Offices in the LGU, Data submission from Private Real Estate Practitioners, and Data from Bank appraisals, notwithstanding the secured data sharing between partner NGA and the Assessor's Offices in the LGU, allowing verification or validation of property and taxpayer information. It shall also allow viewing of SMVs and mapping with overlays relative to appraisal and assessment, together with data analytics function.

B. GEOGRAPHIC INFORMATION SYSTEM (GIS) (*Beta Version – month 5, Final Version – month 21*)

The system must be able to link the real property database in the Local RPIS to the GIS spatial database. Technical Proposal shall include ten (10) Perpetual licenses that are either floating or transferrable to another computer unit. As proof of compliance, it must contain

the unamended GIS Software Documentation from the manufacturer. It must feature an extensive and varied data format that possesses direct access to various types of geospatial data right out of the box without an additional license purchase. Access to Online-Data is required, allowing real-time streaming of web-based data sets or exporting to a local file for offline use. It must support reading and writing data from the most common spatial databases such as MS SQL Server, MySQL Spatial, Oracle Spatial, PostGIS/PostgreSQL, and SpatiaLite/SQLite. Moreover, the GIS software must be able to perform the following data processing:

1. **Reprojecting**
Reprojection of any layer to another system before export, regardless of native projection parameters. Must be built-in in the software and allows configuration by the users depending on their requirements.
2. **Attribute Management**
Allows full attribute editing and processing, with standard attribute search capability, featuring the powerful search and replace tool.
3. **Batch Processing**
To streamline a data processing workflow, the software must have a batch processing function that allows multiple selected files, or all compatible files within a specified folder, to be converted, reprojected, gridded, and renamed.
4. **Geocoding**
Allows assignment of real-world coordinates to an imported database of addresses, utilizing either preconfigured online service or a user-imported road network, determining the point representing the location of each address. Has the option to export in tabular form or plot on the map.
5. **Image Rectification**
Importing of image files to create a geographically aligned and scaled raster layer.
6. **Digitizing**
Features an array of digitizing tools that allow creating and/or editing features on the map, as well as function for standard point line and area creation. Also allows specialized geometric features such as range rings, grids, and buffer areas. Features advanced coordinate geometry input that will allow object creation on the map through the encoding of geometric dimensions. Includes editing functions such as rotating, scaling, and moving features on the map. With regards to the ability to effect modifications, it can be applied to the entire features or to individual vertices to the shape and size of a feature. Lastly, it must possess scripting and batching tools for automation of GIS processing tasks.
7. **Flexible View Interface**
Supports multi-view map display, allowing display of multiple docked map windows, in either top-down 2D rendering and/or oblique 3D viewing, which is independently zoomable and can be panned and can be resized to make the most efficient use of the available screen space.
8. **Spatial Operations**
Capability to perform standard operations such as Intersection, Union, Difference, Symmetric Difference, Intersects, Overlaps, Touches, Contains, Equals, Within, and Disjoint. Entails also support for spatial operations scripting.
9. **Feature Rendering**

Features pre-installed or custom symbols can be attributed to points, as well as the application of multiple line styles and weights to linear features. Provides solid or patterned fill shading on area features. Able to reflect feature style as attribute data for the creation of thematic maps.

10. Map Printing and Web Publishing
Supports all standard and customized page sizes including large format or plotter printing.
11. Cartographic Publishing
Includes cartographic elements such as a scale bar, compass rose, and map legend within the layout frame and supplementary text. Allows easy incorporation of corporate branding graphics to the design, with option to save as a template.
12. PDF Generation
Capacity to generate PDF file, including the option to create a Geospatial PDF from the current page layout, with the resulting file also including coordinate information and individual layer characteristics to allow display of inherent geographic details in other PDF reader.
13. Web Tile Exporting
Option to export the current map view as a series of web-ready raster tiles that are compatible with common online map formats, such as Google and Bing Maps.
14. 3D Data Rendering
3D Viewer, can be docked and linked to the 2D map, enabling automatic replication of panning, zooming, and adding vector features in both windows, and provisions function to select and measure features in the 3D viewer.
15. Linear Profiling/Line of Sight
Visualization option allowing Path Profile display, rendered as a terrain cutaway in the 3D View. Allows profiling of line features on the map to create a cross-sectional view of the underlying terrain. Include a line-of-sight calculation for visualization of any obstructions interfering with the view along the profile path.

C. CLOUD INFRASTRUCTURE *(month 3 to month 21)*

Includes the following requirements *(Hardware, Software Licenses and Subscriptions will be provided by BLGF)*:

- a. Cloud Hosting for 5 Years
- b. Virtual Private Network
- c. Virtual Private Cloud connector/peering
- d. API Gateway
- e. VPN Gateway
- f. Network/Application Firewall
- g. Network/Application Load Balancer
- h. Virtual Machines
- i. SQL/No SQL Database
- j. Storage
- k. Datawarehouse
- l. Business Intelligence
- m. SSL Certificate
- n. SIEM - security information and event management
- o. Other Cloud Native services needed to complement the project

XI. PREPARATION OF PROPOSAL

In addition to fully accomplishing the request for proposal template, proposing entities are requested to prepare a detailed description of how they intend to deliver on the outputs of the contract in the section of their proposal called "Approach and Methodology." In this narrative, entities should be explicit in explaining how they will achieve the outputs and include any information on their existing activities upon which they may eventually build as well as the details of what staff will comprise the project team.

Each key and non-key expert included in the proposal must submit a curriculum vitae (CV). Only the CVs of key experts will be scored as part of the technical evaluation of proposals. The CVs of non-key experts will not be scored but will be evaluated on a pass/fail basis, based on the merits of the CV against the proposed position/task assignment for each expert. The credentials of non-key experts, as well as the design of the team as a whole (including the appropriateness of the level of inputs (Home, Field, Total), will be taken into account in the evaluation of Quality of Approach and Work Plan and Personnel Schedule criteria.

All positions under the contract, both key and non-key experts, must be included and budgeted for in the financial proposal in accordance with the person-month allocation required for each as defined by the proposing organization. Proposals should include a detailed budget covering both consultancy fees and other costs of activities, and charges.

XII. ADDITIONAL REQUIREMENTS FOR TECHNICAL PROPOSAL

As proof of the interested FIRM's general understanding of the system requirements indicated in this TOR, the FIRM is required to include in its Technical Proposal the initial draft system design covering but not limited to the following:

- a. Database backup plan
- b. Application redundancy
- c. Audit trails
- d. Security
- e. System diagrams
- f. Flowcharts
- g. Wireframes and/or Mockups
- h. Content Management System (CMS)
- i. Role based Access Control Level
- j. Version Control Tool

XIII. QUALIFICATIONS

A. FIRM (NATIONAL)

The FIRM shall have the following qualifications:

a.1 Years of experience as follows:

- a.1.1 At least five (5) years of experience in developing, designing, and implementing an integrated data warehouse system using both on-premises and cloud infrastructure;
- a.1.2 At least ten (10) years of experience in developing, designing, and implementing Real Property Tax Administration or related systems for both national and local governments with GIS integration. The FIRM shall be required to demonstrate a working prototype system during the selection process to ensure output completion within the project duration;

- a.1.3 At least five (5) years of proven track record in developing, designing, and implementing the GIS system;
- a.2 Must have successfully implemented/managed at least five (5) similar projects, including ongoing projects from national government and local government clients, with an actual running RPTA system, data synchronization from Municipalities to Province and vice versa or similar settings;
- a.3 Proof of undertaking similar contracts of at least US\$ 1.5 million as the Single Largest Completed Contract (SLCC);
- a.4 Proof of extensive experience in Philippine Real Property Taxation System or similar international experience is an advantage;
- a.5 An equal opportunity employer;
- a.6 The FIRM must have a secured, physical software development office within NCR which are open for regular visits from PMU and PMO team members;
- a.7 SEC Registration/License; Local Business Permit; Domestic or Foreign Corporation:
 - a.7.1 A local IT contractor is required to establish a Philippine corporation, to implement the project; it may be the sole contractor without subcontractors, or may engage subcontractors but in this case assume responsibility for the entire project; a foreign IT subcontractor, if any under the local IT contractor, is required to establish either a Philippine corporate subsidiary, or a foreign branch office, to implement the project;
 - a.7.2 A foreign IT contractor is required to establish a Philippine corporate subsidiary, or establish a foreign branch office, to implement the project; it may be the sole contractor without subcontractors, or may engage subcontractors but in this case assume responsibility for the entire project; a foreign IT subcontractor, if any under the foreign IT contractor, is required to establish either a Philippine corporate subsidiary, or a foreign branch office, to implement the project;
 - a.7.3 The foreign IT contractor, that is the sole contractor without subcontractors, must prepare a continuity plan for the proper transfer of technology to the project owner, for the long-term sustainability of the project
 - a.7.4 The foreign IT contractor, that is either the main contractor or subcontractor, must ensure the proper transfer of technology to its local partner, to the extent of building the capacity of the said partner, for the long- term sustainability of the project;
 - a.7.5 The presence of local staff who qualify as key members of the project team, shall be necessary for qualification; this requirement applies to both the local and foreign IT contractor;
 - a.7.6 The contractor awarded the contract shall not subcontract the project or any part thereof to any other party, whether local or foreign, without the consent and approval of the project owner.
- a.8 The FIRM must submit Statement of Completed Government and Private Contracts
- a.8 Must have ISO 27001:2013 – Information Security Management System Certification and at least one (1) of the following certifications:
 - a.8.1 ISO 9001:2015 – Quality Management System
 - a.8.2 ISO 20000-1:2011 – IT Service Management System
 - a.8.3 ISO 22301:2012 - Business Continuity Management System
 - a.8.5 PCIDSS certified
- a.9 Other experiences:
 - a.9.1 Have a greater public reach and nationwide coverage.
 - a.9.2 Have experience and expertise in Commercial Grade Data Centers.
 - a.9.3 With Cloud service partnerships with the major cloud service providers.
 - a.9.4 Must have had experience in setting up and providing internet connectivity to local government units.

B. PROPOSED MINIMUM TEAM COMPOSITION

The Project Team shall include, but is not limited to the following key and non-key experts:

#	Description
Key Experts	
1	Project Manager (PM)
2	Business Analyst (BA)
3	Network and Cloud Security Specialist (NCSS)
4	Technical Analyst (TA)
5	Senior Network Administrator (SNA)
6	Information Systems Analyst (ISA)
7	Assessment and Valuation Expert (AVE)
8	Digital Artist (DA)
9	TL-Senior Front-end Developer/Programmers (SFED)
10	Front-end Developer/Programmers (FED)
11	Web Designer (WD)
12	TL-Database Administrator/Network Security Specialist (DBA/NSS)
13	Back-end Developer (BED)
14	TL-GIS Specialists (GISS)
15	Senior GIS Developer/Programmer (SGISD)
16	GIS Developer/Programmer (GISD)
Non-Key Experts	
17	Quality Assurance/System Administrator (QA/SYSAD)
18	System Tester/Help Desk (ST/HD)
19	Data Encoders (DE)

b.1 Project Manager (PM)

b.1.1 The PM shall perform the following functions:

- b.1.1.1 Collaborate with the PMU and PMO Output2 team leaders for planning and overseeing the RPIS development and rollout to ensure they are completed in time and within budget;
- b.1.1.2 Coordinate the development of user manuals, training materials, and other documents as needed to enable successful implementation and turnover of the system to BLGF;
- b.1.1.3 Be available for regular PMU and PMO meetings in the BLGF office; and
- b.1.1.4 Other necessary and related tasks attributable to the position for the completion of the project.

b.1.2 The PM shall have the following qualifications:

- b.1.2.1 Minimum 8 years of proven work experience as a Project Manager;
- b.1.2.2 Proven working knowledge and part of a development and integration project in GIS and API Integration like OpenStreetMap, MapBox, Google Map API, QGIS, and any mapping-related software/system;
- b.1.2.3 Involved in the Implementation of minimum 3 System Development Projects that were used in production;
- b.1.2.4 Proven work experience in Project Management on an Enterprise level system implementation;
- b.1.2.5 Work experience and knowledge in SDLC, TLDC, and Agile Development;

- b.1.2.6 Work experience and knowledge in Database Management like MySQL, MariaDB, Oracle, or Microsoft SQL;
- b.1.2.7 Work experience and knowledge in API Development and Integration;
- b.1.2.8 Work experience and knowledge in HTML5, CSS, JavaScript, NodeJS, JS Frameworks, PHP, or Microsoft Frameworks;
- b.1.2.9 Please state or provide GIS-related projects that you were involved in and that the system is being used in the market; and
- b.1.2.10 Education and training certification/s related to the assigned role for this project.

b.2 Business Analyst (BA)

b.2.1 The BA shall perform the following functions:

- b.2.1.1 Collaborate with the PMU and PMO Output2 team leaders and the FIRM's Project Manager to determine the scope and vision of the RPIS project;
- b.2.1.2 Be available for regular PMU and PMO meetings in the BLGF office;
- b.2.1.3 Conduct interviews to gather customer requirements via workshops, questionnaires, surveys, site visits, workflow storyboards, use cases, scenarios, and other methods;
- b.2.1.4 Translate conceptual requirements into functional requirements in a clear manner that is comprehensible to RPIS developers/project team; and
- b.2.1.5 Other necessary and related tasks attributable to the position for the completion of the project.

b.2.2 The BA shall have the following qualifications:

- b.2.2.1 Minimum 5 years of proven work experience as a Business Analyst
- b.2.2.2 Proven working knowledge and part of a development and integration project in GIS and API Integration like OpenStreetMap, MapBox, Google Map API, QGIS, and any mapping related software/system;
- b.2.2.3 Involved and part of the Implementation of minimum 3 System Development Projects that were used in production;
- b.2.2.4 Proven work experience in the formulation of Business Requirements Document including the Functional and Technical Requirements Specifications;
- b.2.2.5 Work experience and knowledge in SDLC, TLDC, and Agile Development;
- b.2.2.6 Work experience and knowledge in Database Management like MySQL, MariaDB, Oracle, or Microsoft SQL;
- b.2.2.7 Work experience in Code Versioning like GitLab, GitHub, or Bitbucket;
- b.2.2.8 Work experience and knowledge in API Development and Integration;
- b.2.2.9 Work experience and knowledge in HTML5, CSS, JavaScript, NodeJS, JS Frameworks, PHP, or Microsoft Frameworks; and
- b.2.2.10 Education and training certification/s related to the assigned role for this project.

b.3 Network and Cloud Security Specialist (NCSS)

b.3.1 The NCSS shall perform the following functions:

- b.3.1.1 Collaborate with the PMU and PMO team leaders, Project Manager, Business Analysts, and Technical Analysts in planning the hybrid infrastructure with combined secure cloud and on-premises system requirements and constructing, validating, and deploying the system;
- b.3.1.2 Monitor and detect malicious activity once the system is deployed; and

- b.3.1.3 Other necessary and related task attributable to the position for the completion of the project.

b.3.2 The NCSS shall have the following qualifications:

- b.3.2.1 Minimum 5 years of proven work experience as Network and Cloud Security Specialist;
- b.3.2.2 Proven working knowledge and part of a development and integration project in GIS and API Integration like OpenStreetMap, MapBox, Google Map API, QGIS, and any mapping related software/system;
- b.3.2.3 Involved and part of the Implementation of minimum 3 System Development Projects that were used in production;
- b.3.2.4 Proven work experience and knowledge in Design, Implementation, and management of the following: Hybrid Cloud, WAN, Security Cloud, Network, and Application;
- b.3.2.5 Work experience and knowledge in SDLC, TLDC, and Agile Development;
- b.3.2.6 Work experience and knowledge in Database Management like MySQL, MariaDB, Oracle, or Microsoft SQL;
- b.3.2.7 Work experience in Code Versioning like GitLab, GitHub, or Bitbucket;
- b.3.2.8 Work experience and knowledge in API Development and Integration; and
- b.3.2.9 Education and training certification/s related to the assigned role for this project.

b.4 Technical Analyst (TA)

b.4.1 The TA shall perform the following functions:

- b.4.1.1 Translate requirements defined by the Business Analyst into technical specifications;
- b.4.1.2 Responsible for issues connected with the integration between external providers, or those regarding IT infrastructure of the RPIS; and
- b.4.1.3 Other necessary and related task attributable to the position for the completion of the project.

b.4.2 The TA shall have the following qualifications:

- b.4.2.1 Minimum 5 years of proven work experience as a Technical Analyst;
- b.4.2.2 Proven working knowledge and part of a development and integration project in GIS and API Integration like OpenStreetMap, MapBox, Google Map API, QGIS, and any mapping related software/system;
- b.4.2.3 Involved and part of the Implementation of minimum 3 System Development Projects that were used in production;
- b.4.2.4 Proven work experience in preparation of Functional and Technical Requirements Specifications;
- b.4.2.5 Work experience and knowledge in SDLC, TLDC, and Agile Development;
- b.4.2.6 Work experience and knowledge in Database Management like MySQL, MariaDB, Oracle, or Microsoft SQL;
- b.4.2.7 Work experience in Code Versioning like GitLab, GitHub, or Bitbucket;
- b.4.2.8 Work experience and knowledge in API Development and Integration;
- b.4.2.9 Work experience and knowledge in HTML5, CSS, JavaScript, NodeJS, JS Frameworks, PHP, or Microsoft Frameworks; and
- b.4.2.10 Education and training certification/s related to the assigned role for this project.

b.5 Senior Network Administrator (SNA)

b.5.1 The SNA shall perform the following functions:

- b.5.1.1 Serve as the Technical Support Staff Focal of BLGF ISMD and the LGRP Output 2 team viz. the FIRM contracted for the development of the: (i) RPIS, and (ii) GIS, which will be hosted at the BLGF Central Office;
- b.5.1.2 Assist the counterpart Lead Programmer of the contractor in coding the module, to ensure that the RPIS lodged at BLGF Central Office would unify and integrate the foregoing deployed systems in the field, with regards to the deployment and testing of the integrated property assessment, billing and payment system that are to be deployed in pilot LGUs;
- b.5.1.3 Assist the BLGF's regional offices as the Technical Support Staff Focal, pertinent to the 4 above-mentioned IT systems, towards providing technical assistance in resolving (IT-related) technical issues that may arise in all of the pilot LGUs -- both during and beyond Project implementation;
- b.5.1.4 Serve as BLGF's Technical Support Staff Focal in coding the module that would operationalize the model data exchange platform (i.e., within the RPIS) being established preliminarily between BLGF, LRA, BIR, and other partner NGA, which would eventually extend to the BSP, its regulated financial community, and other entities that would later intend to collaborate with the BLGF; and
- b.5.1.5 Perform other tasks as may be identified and deemed appropriate by the corresponding (i) BLGF Technical Lead and (ii) Output Manager of the PMU. He/she is responsible for the preparation, migration, and clean-up of the national spatial database and various thematic maps to be included in the map viewing features of the RPIS.

b.5.2 The SNA shall have the following qualifications:

- b.5.2.1 Degree in Computer Science, Information Management, or related field;
- b.5.2.2 At least five (5) years of experience in coding databases and systems, esp. in the field of public finance management;
- b.5.2.3 Experience in the design and/or implementation of Enterprise Resource Planning (ERP) Systems would be a distinct advantage;
- b.5.2.4 Excellent communication skills (written and verbal);
- b.5.2.5 Experience working with LGUs and/or National Government Agencies; and
- b.5.2.6 Work experience on similar projects under either development partners or private sector companies that have international/global operations is an advantage.

b.6 Information Systems Analyst (ISA)

b.6.1 The ISA shall perform the following functions:

- b.6.1.1 Assist the Senior Programmer in ensuring that the (i) RPIS, (ii) online transparency portal, (iii) GIS, and (iv) integrated property assessment, billing, and payment system that is to be deployed in pilot LGUs -- being developed and deployed, would be integrated with both the BLGF's (i) existing databases and systems, as well as (ii) its overall IT capacity;
- b.6.1.2 Assist the Senior Programmer vis-a-vis the deployment and testing of the integrated property assessment, billing and payment system that are to be deployed in pilot LGUs;
- b.6.1.3 Assist the Senior Programmer in developing the technical capacity of BLGF's regional offices, pertinent to the 4 above-mentioned IT systems,

towards providing technical assistance in resolving (IT-related) technical issues that may arise in all of the pilot LGUs -- both during and beyond Project implementation;

- b.6.1.4 Assist the Senior Programmer in ensuring the credibility and integrity of applications and verify that all applications in development were reviewed for security before and during production;
- b.6.1.5 Assist and provide inputs to the Senior Programmer in the development, deployment, and expansion of the model data exchange platform being established preliminarily between BLGF, LRA and BIR, which would eventually extend to the BSP, its regulated financial community, and other entities that would later intend to collaborate with the BLGF; and
- b.6.1.6 Perform other tasks as may be identified and deemed appropriate by the corresponding (i) BLGF Technical Lead and (ii) Output Manager of the PMU.

b.6.2 The ISA shall have the following qualification

- b.6.2.1 Must have a degree in Computer Science, Information Management, or a related field;
- b.6.2.2 Must have at least one (1) year of experience in management information systems design, development, maintenance, and operation;
- b.6.2.3 Excellent communication skills (written and verbal); and
- b.6.2.4 Work experience on similar projects under development partners or private sector companies that have international/global operations is an advantage.

b.7 Assessment and Valuation Expert (AVE)

b.7.1 The AVE shall perform the following functions:

- b.7.1.1 Translate requirements defined by the Business Analyst – Local RPIS into specifications;
- b.7.1.2 Provide necessary technical guidance and input in the computation of values using Market/Sales Data Approach, Cost Approach, and Income Approach;
- b.7.1.3 Provide technical inputs in the real property valuation and assessment for taxation purposes, specifically real property tax administration;
- b.7.1.4 Provide technical inputs in the billing and collection of real property tax, including treasury operations related in real property taxation;
- b.7.1.5 Provide technical inputs in the real estate data sharing requirements of the stakeholders; and
- b.7.1.6 Other necessary and related task attributable to the position for the completion of the project.

b.7.2 The AVE shall have the following qualifications:

- b.7.2.1 Minimum 10 years of proven work experience as Appraiser, and or Assessor in the LGU;
- b.7.2.2 Licensed real property appraiser/valuer;
- b.7.2.3 Working experience and knowledge in Assessment Treasury Operations;
- b.7.2.4 Working experience and knowledge in real estate economics; and
- b.7.2.5 Education and training certification/s related to the assigned role for this project.

b.8 Digital Artist (DA)

b.8.1 The DA shall perform the following functions:

- b.8.1.1 Design, produce and manage all types of prints and digital designs, illustrations, artworks and other types of visual contents, to be used for websites, advertisements, campaigns, projects, promotional events and the like;
- b. 8.1.2 Closely work with marketing, IT Department, creative team, and/or other relevant departments, during the creation, finalization and implementation of any type of contents;
- b. 8.1.3 Provide assistance to other departments with design or collateral requirements;
- b. 8.1.4 Other necessary and related task attributable to the position for the completion of the project.

b.8.2 The DA shall have the following qualifications:

- b. 8.2.1 Bachelor's Degree in Digital Design, Graphic Design or a related field;
- b.8.2.2 Minimum 3 years of proven work experience and creativity, as a Digital Artist;
- b.8.2.3 Solid knowledge of the design software programs, both traditional and latest program versions, such as but not limited to Sketch, InVision, and Adobe Creative Suite;
- b.8.2.4 With photography and typography skills; and
- b.8.2.5 Extensive understanding of the digital marketing principles and practices

b.9 TL-Senior Front-end Developer/Programmers (SFED)

b.9.1 The SFED shall perform the following functions:

- b.9.1.1 Assist the Senior Network System Administrator in BLGF viz the FIRM contracted for the development of the (i) RPIS and (ii) GIS, which will be hosted at the BLGF Central Office;
- b.9.1.2 Take lead in coding the module, which will ensure that the RPIS lodged at BLGF-CO would unify and integrate the foregoing deployed systems in the field, with regards to the deployment and testing of the integrated property assessment, billing and payment system that are to be deployed in pilot LGUs;
- b.9.1.3 Assist the Senior Network System Administrator in developing the technical capacity of BLGF's regional offices, pertinent to the 4 above-mentioned IT systems, towards providing technical assistance in resolving (IT-related) technical issues that may arise in all of the pilot LGUs - both during and beyond Project implementation;
- b.9.1.4 Assist the Senior Network System Administrator in coding the module that would operationalize the model data exchange platform (i.e., within the RPPIS) being established preliminarily between BLGF, LRA, and BIR, which would eventually extend to the BSP, its regulated financial community, and other entities that would later intend to collaborate with the BLGF; and
- b.9.1.5 Perform other tasks as may be identified and deemed appropriate by the corresponding (i) BLGF Technical Lead and (ii) Output Manager of the PMU.

b.9.2 The SFED shall have the following qualifications:

- b.9.2.1 Must have a degree in Computer Science, Information Management, or a related field;

- b.9.2.2 Must have at least three (3) years of experience in coding databases and systems
- b.9.2.3 Excellent communication skills (written and verbal);
- b.9.2.4 Experience working with LGUs and/or National Government Agencies; and
- b.9.2.5 Work experience on similar projects under development partners or private sector companies that have international/global operations is an advantage.

b.10 Front-end Developer/Programmers (FED)

b.10.1 The FED shall perform the following functions:

- b.10.1.1 Assist the Senior Programmer and the BLGF Output 2 team viz. the FIRM contracted for the development of the (i) RPIS and (ii) GIS, which will be hosted at the BLGF Central Office; and
- b.10.1.2 Perform other tasks as may be identified and deemed appropriate by the corresponding (i) BLGF Technical Lead and (ii) Output Manager of the PMU.

b.10.2 The FED shall have the following qualifications:

- b.10.2.1 Must have a degree in Computer Science, Computer Programming, or related field
- b.10.2.2 Must have at least three (3) years of experience in coding databases and systems
- b.10.2.3 Excellent communication skills (written and verbal);
- b.10.2.4 Experience working with LGUs and/or National Government Agencies; and
- b.10.2.5 Work experience on similar projects under development partners or private sector companies that have international/global operations is an advantage.

b.11 Web Designers (WD)

b.11.1 The WD shall have the following functions:

- b.11.1.1 Design responsive, best practice and efficient landing pages;
- b.11.1.2 integrate client data, and system features and functionalities into websites;
- b.11.1.3 Optimize the website to its maximum speed and scalability;
- b.11.1.4 Conduct website stress testing;
- b.11.1.5 Closely coordinate with the front-end and back-end developers for efficient integration of the web page and its applications;
- b.11.1.6 Create stable website functions across all devices; and
- b.11.1.7 Perform other tasks as may be identified and deemed appropriate by the corresponding (i) BLGF Technical Lead and (ii) Output Manager of the PMU

b.11.2 The WD shall have the following qualifications:

- b.11.2.1 Must have a degree in Computer Science, Computer Programming, Graphic Design, or related field;
- b.11.2.2 Must have at least three (3) years of experience in programming tools and techniques, visual design skills, and web graphic design;
- b.11.2.3 Excellent communication skills (written and verbal);
- b.11.2.4 Experience working with LGUs and/or National Government Agencies; and

- b.11.2.5 Work experience on similar projects under development partners or private sector companies that have international/global operations is an advantage

b.12 Back-End Development (BED)

b.12.1 The BED shall perform the following functions:

- b.12.1.1 Data, codes and processes compilation and analysis to troubleshoot issues and areas for improvement;
- b.12.1.2 Regular collaboration with the Front-End Developers and other involved teams to create a more functional processes, features and programs;
- b.12.1.3 Data recording and reporting to proper parties, agencies and clients;
- b.12.1.4 Create ideas or suggestions for processes, programs, features or products based on functional industry trends;
- b.12.1.5 Create and improve the back-end applications and processes; and
- b.12.1.6 Perform other tasks as may be identified and deemed appropriate by the corresponding (i) BLGF Technical Lead and (ii) Output Manager of the PMU

b.12.2 The BED shall have the following qualifications:

- b.12.2.1 Must have a degree in Computer Science, Computer Programming, or related field;
- b.12.2.2 Must have at least three (3) years of experience as a Back-End Developer, in programming tools and techniques, and web development;
- b.12.2.3 Excellent communication skills (written and verbal);
- b.12.2.4 Experience working with LGUs and/or National Government Agencies; and
- b.12.2.5 Work experience on similar projects under development partners or private sector companies that have international/global operations is an advantage

b.13 Database Administrator/Network Security Specialist (DBA/NSS)

b.13.1 The DBA/NSS shall perform the following functions:

- b.13.1.1 Create, implement and maintain database standards, protocols and policies;
- b.13.1.2 Database administration of processes and its tools, configuration, software upgrade, even the testing activity;
- b.13.1.3 Manage database security, integrity, audit trails, incidents, problems and forensic issues;
- b.13.1.4 Database monitoring of resource usage, transaction volumes, and the like;
- b.13.1.5 Regular backup, archiving and storage management; and
- b.13.1.6 Perform other tasks as may be identified and deemed appropriate by the corresponding (i) BLGF Technical Lead and (ii) Output Manager of the PMU

b.13.2 The DBA/NSS shall have the following qualifications:

- b.13.2.1 Must have a degree in Computer Science, Computer Programming, Engineering, or related field;
- b.13.2.2 Must have at least three (3) years of experience in database management and its relevant technologies, and SQL;

- b.13.2.3 Excellent communication skills (written and verbal);
- b.13.2.4 Excellent analytical skills;
- b.13.2.5 Experience working with LGUs and/or National Government Agencies; and
- b.13.2.6 Work experience on similar projects under development partners or private sector companies that have international/global operations is an advantage.

b.14 TL-GIS Specialist (GISS)

b.14.1 The GISS shall perform the following functions:

- b.14.1.1 Responsible for the preparation, migration and clean-up of the national spatial database and various thematic maps to be included in the map viewing features of the RPIS.; and
- b.14.1.2 Other necessary and related task attributable to the position for the completion of the project.

b.14.2 The GISS shall have the following qualifications:

- b.14.2.1 Minimum 5 years of proven work experience as GIS Specialist;
- b.14.2.2 Proven work experience in thematic mapping, spatial operations, and map publishing;
- b.14.2.3 Work experience and knowledge in Database Management like MySQL, MariaDB, Oracle, or Microsoft SQL;
- b.14.2.4 Work experience and knowledge in using various GIS software like QGIS, Global Mapper, ESRI GIS, or AutoCAD Map; and
- b.14.2.5 Education and training certification/s related to the assigned role for this project.

b.15 Senior GIS Developer/Programmer (SGISD)

b.15.1 The SGISD shall perform the following functions:

- b.15.1.1 Assist the GIS Specialist and the BLGF Output 2 team viz. the FIRM contracted for the development of the (i) RPIS and (ii) GIS, which will be hosted at the BLGF Central Office; and
- b.15.1.2 Perform other tasks as may be identified and deemed appropriate by the corresponding (i) BLGF Technical Lead and (ii) Output Manager of the PMU.

b.15.2 The SGISD shall have the following qualifications:

- b.15.2.1 Must have a degree in Computer Science, Computer Programming, or related field;
- b.15.2.2 Must have at least three (3) years of experience in coding databases and systems;
- b.15.2.3 Excellent communication skills (written and verbal);
- b.15.2.4 Experience working with LGUs and/or National Government Agencies; and
- b.15.2.5 Work experience on similar projects under development partners or private sector companies that have international/global operations is an advantage.

b.16 GIS Developer/Programmer (GISD)

b.16.1 The GISD shall perform the following functions:

- b.16.1.1 Assist the GIS Specialist and the BLGF Output 2 team viz. the FIRM contracted for the development of the (i) RPIS and (ii) GIS, which will be hosted at the BLGF Central Office; and

- b.16.1.2 Perform other tasks as may be identified and deemed appropriate by the corresponding (i) BLGF Technical Lead and (ii) Output Manager of the PMU.

b.16.2 The GISD shall have the following qualifications:

- b.16.2.1 Must have a degree in Computer Science, Computer Programming, or related field;
- b.16.2.2 Must have at least three (3) years of experience in coding databases and systems;
- b.16.2.3 Excellent communication skills (written and verbal);
- b.16.2.4 Experience working with LGUs and/or National Government Agencies; and
- b.16.2.5 Work experience on similar projects under development partners or private sector companies that have international/global operations is an advantage.

The FIRM has the flexibility to assign experts from International to National or vice versa depending on the FIRM's preference and experts qualifications.

XIV. REPORTING REQUIREMENTS AND TIME SCHEDULE

The FIRM shall submit a regular monthly and quarterly progress reports, and annual accomplishment report to the BLGF and ADB. Three (3) copies of the reports required by the TOR must be submitted to the BLGF Executive Director for review and approval. Aside from these regular progress and accomplishment reports, the FIRM shall also participate and prepare necessary documents, information and activities for the conduct of project mid-term and completion reports.

The selected firm shall meet with BLGF at least (twice) a month during the project duration to discuss activities, issues, concerns, and related action plans. The selected firm shall submit monthly reports detailing work progress, issues, and concerns, and next steps in relation to the project as part of the deliverables.

The FIRM shall also provide electronic copies of the following reports:

Activities and Reporting	Timeline and Terms
Inception Report	Within 4 weeks after mobilization of the contract
Monthly Progress Report	Last working day of each month
Quarterly ProgressReport	Last working day of each quarter
Annual Report	Every 15 th of December of each year
Project CompletionReport	Thirty days after completion of the ADB ProjectCompletion Mission

1. **Inception Report.** The Inception Report which will be submitted within four weeks after the contract has been awarded shall include the following information: Project Work Plan, Milestones and target deliverables, Project Team composition, proposed approach and methodology.
2. **Monthly/Quarterly Progress Report.** Prepare project status report, activities performed, deliverables, issues and challenges encountered and its proposed action plan.
3. **Project Completion Report.** Prepare a comprehensive report summarizing the project

implementation activities and deliverables.

Reports shall be printed in 3 copies – BLGF (2 copies) and ADB (1 copy) and an electronic copy (submitted in USB). All reports shall be submitted and addressed to:

Officer's Name : **Consolacion Q. Agcaoili**
Position : Executive Director
Office : Department of Finance-Bureau of Local Government Finance (BLGF)
Telephone : +632 8527-2780
Email address : executivedirector@blgf.gov.ph
Office Address : 8th Floor, EDPC Bldg., BSP Complex, Roxas Blvd., Manila

XV. PROJECT MILESTONES

The firm must identify milestones in a project work plan to show overall progress and as an indicator of compliance with an established project schedule. While the firm may propose their own milestones, typical milestones might include:

Stage	Milestones	Month of Completion
Stage I	Project Kick-Off Meeting & Contract Signing	M1 (1 Month)
	Preliminary Assessment URS and FRS Document	
	Finalization of System Requirement Specifications (SRS) based on URS and FRS	
	Inception Report, Project Work Plan, SRS sign-off	
Stage II	Architecture Design and Prototype Development	M2-M3 (2 Months)
	High Level and Security Design Document	
	Design documents & prototype acceptance sign-off	
Stage III	Applications development and deployment	M4-M11 (8 Months)
	Unit testing, Load testing, and Integration testing	
	Testing Documentation (including details of defects/bugs/errors and their resolution)	
	User Training and Workshops	
	System Dry Run	
	Delivery Sign-off	
Stage IV	System Deployment, System Parallel Run and UAT	M12-M14 (3 Months)
	System stabilization and User Acceptance Testing	
	UAT Sign-off	
Stage V	User Training/Workshops	M15-M16 (2 Months)
	Deploy RPIS to LGUs	
	Deploy RPIS to BLGF Central and Regional Offices	
	Deploy RPIS with GIS integration	
	GO LIVE	
Stage VI	System Implementation, Monitoring and Stabilization, submission of source codes and turn-over of all required documents. Acceptance Sign-off	M17-M21 (5 Months)
Stage VII	Project Exit Sign-off	

XVI. ACTIVITIES WITH ON-SITE VISIT TO PROTOTYPE LGUs

Below is BLGF's proposal activities for site visit to prototype LGUs, while firm may identify the proposed number of visits, days and experts required per activity.

#	Activities	No. of Key Experts per visit	Freq. of visits	No. of LGUs / Regions	No. of LGUs / Regions Outside NCR	Total no. of travels per Key Expert	Total no. of travels	No. of Days per visit	Total No. of Days	Total No. of Days with Per Diem (Outside NCR)
1	Data Gathering (meeting and coordination with LGUs and NGAs)	5	3	15	5	45	225	5	1125	375
2	Analysis and Design									
3	Design presentation to Users (BLGF, DOF, LGUs, NGAs)	5	3	3	2	9	45	3	135	90
4	Development / Coding									
5	Data Migration / Encoding	10	5	5	5	50	250	10	2,500	2,500
6	Installation, Deployment, Testing and Apply fixes, User Acceptance Test (UAT), Training and Workshops	5	10	13	5	130	650	5	3,250	1,250
7	Parallel Run / Dry Run	5	2	13	5	26	130	5	650	250
8	Launching / Go-Live	5	1	13	5	13	65	5	325	125
TOTAL		35	24	62	27	273	1,365	33	7,985	4,590

- Follow-up meetings, technical support and/or trouble shooting can be done on-site, online or remote administration
- For mass data encoding, the FIRM has the option to hire stay-in or local encoders (if applicable)
- For trainings, workshops, data gatherings and other related activities, the FIRM has the option to do it per cluster

XVII. PERIODIC PERFORMANCE EVALUATION

The individual consultants will be subject to a joint semestral evaluation by the BLGF. The FIRM, on the other hand, will be subject to an annual evaluation by the BLGF.

1. Project Management Review

BLGF would review the progress of the project at regular intervals. The FIRM should send monthly status reports to the BLGF. The FIRM has to obtain necessary concurrence from the BLGF if there are any slippages in the deliverables (Expected deliverables from the FIRM).

2. Acceptance Criteria

- The BLGF will accept the commissioning and project Sign-Off only after getting an acceptance letter from all respective agencies.
- A team comprising of representatives from the BLGF, selected FIRM, and other member of the project, will verify if all the components of the solution are working fine and if the

- stakeholders are satisfied with the system enhancement.
- c. Acceptance by the BLGF is subject to satisfactory responses from the users and relevant line agencies.
 - d. Acceptance letter shall be issued within thirty (30) calendar days.

XVIII. PAYMENT SCHEDULE

Stage	Project Deliverables	Month of Completion	% of Payment
Stage I	Inception Report, Project Work Plan, SRS Sign-off	M1	5%
Stage II	Design documents and prototype acceptance Sign-off	M3	10%
Stage III	Applications development and deployment Delivery Sign-off	M11	20%
Stage IV	System Deployment and UAT Sign-off	M14	10%
Stage V	User Training/Workshops, GO LIVE	M16	30%
Stage VI	System Implementation, Monitoring and Stabilization	M17-M20	
Stage VII	Submission of source codes and turn-over of all required documents, Acceptance Sign-off, Project Exit Sign-off	M21	25%
TOTAL			100%

***RELEASE OF FULL PAYMENT**

Payment shall be released to the FIRM upon completion of the corresponding deliverables in each stage.

XIX. PROJECT SIGN-OFFS

- SRS Sign-off
- Design Documents and Prototype Acceptance Sign-off
- Delivery Sign-off
- UAT Sign-off
- Source Code Sign-off
- Project Exit Sign-off

Each sign-off will have the attachment of detailed reports submitted to the BLGF.

- I. The FIRM needs to submit a detailed project work plan on the commencement of the project. The BLGF may also prioritize the deliverables and can ask the FIRM to incrementally implement the high priority items initially during the Development Phase. The BLGF would conduct periodic reviews and audits of the work done by the FIRM.

- II. The payment of the product and services will be based on acceptable deliverables dependent on approval of all deliverables associated with that time period. The basis of payment of the FIRM will be percentage of the overall contract value through the duration of the contract. All payments will be done after verification of the FIRM's bill and signed by BLGF.

XX. REPORT REQUIREMENTS AND AFTER SALES SERVICE

- a. Provide after sales service as agreed upon in the Bid Document and Contract.
- b. After sales service will include internal staff and capacity building in maintaining and implementing the System.
- c. Compile and submit documentation of enhancements, troubleshooting performed, and/or applied fixes as may be required by the system.
- d. After Sales Service will be for two (2) years to ensure that all bugs and issues on the system will be addressed. During this period, the Firm will provide the minimum recommended Team of Experts and staff, including one (1) Senior Front-End Developer / Programmer (SFED), one (1) Front-End Developer/Programmer (FED), one (1) Quality Assurance / System Administrator (QA/SYSAD), one (1) System Tester / Help Desk (ST/HD), one (1) Back-End Developer (BED), one (1) Database Administrator / Network / Cloud Security Specialist (DBA/NCSS), one (1) Senior GIS Specialists (SGISS). This Team will be reporting regularly during the first 12 months of the period. As stated in the COST COVERAGE section of this TOR, the expert's salary during this period must be imputed to the total BID AMOUNT as this shall be borne by the FIRM.

XXI. WARRANTY

The FIRM must warrant that the Software to be deployed and furnished to BLGF under the Agreement, will conform in all material respects with the Specifications contained in or developed in accordance with the Contract Documents, and will be: (1) deployed and conveyed to BLGF with good and merchantable title, free and clear of all security interests, Liens, encumbrances or claims of Company, Sub-Contractors and third party suppliers, (2) free of any claim of infringement, misappropriation, unfair competition, or violation of any third party Intellectual Property right, (3) created and delivered in accordance with the then-prevailing applicable Laws, and industry standards and practices, and (4) fully tested in accordance with the Contract Documents.

1.1 GENERAL

1. The Warranty Period commences after the Final Acceptance of the Software System.
2. Software System Warranty Duration is two (2) years.

Within the two-year-period warranty, the FIRM is required to supply and provide the IT (preferably the same Experts or part of the original team) as support staff for BLGF Central Office and Regional Offices, for two (2) years, at the start of the warranty period.

3. FIRM warrants that the system response/processing times shall be according to the requirements detailed in this TOR.

4. FIRM warrants that the Software System will work with all proposed third-party systems and products.
5. The FIRM warrants that the Software System conforms to the Detailed System Requirement Specifications without defects.
6. The FIRM warrants that the Software System will support unlimited transactions.
7. Software System corrections and adjustments shall be provided at no additional cost to the BLGF during the term of the warranty period.
8. Malfunctions in the Software System reported to the FIRM within the warranty period shall be remedied at no additional cost by the FIRM with regards to the operation conditions within the time-limits stated in this TOR.

1.2 PERFORMANCE SECURITY

Within 28 days of the notification of contract award, the FIRM shall provide a Performance Security of ten percent (10%) of the contract price, in the form of a bank guarantee, payable to BLGF as compensation for any loss resulting from the FIRM's failure to complete its obligation under the contract.

The Performance Security shall be returned to the FIRM after complete delivery, completion, commissioning and acceptance of the requirements of Section 6.

1.3 WARRANTY SECURITY

The FIRM must issue a Warranty Security on or before the completion of deliverables in **PROJECT MILESTONES** stated in **Stage VI** "System Implementation, Monitoring and Stabilization, Acceptance Sign-off " in the amount equivalent to **25%** of the total value of the contract. This Warranty Security shall be returned to the FIRM not later than 28 days following the date of completion of the FIRM's warranty obligation.

XXII. CONFIDENTIALITY

1. The FIRM shall ensure that all its services procured from project funds or used by the consultants and project staff in carrying out the services will not violate or infringe on any industrial property or intellectual property right or any third-party claim. All Consultants, Project Staff, and the FIRM shall indemnify the BLGF from and against any claims, liabilities, obligations, losses, damages, penalties, actions, suits, proceedings, demands, costs, expenses, and disbursements that may be imposed on, incurred by, or asserted against BLGF by reason of infringement or alleged infringement of the Consultant, Project Staff or FIRM in carrying out the Services of any intellectual or industrial property right.
2. The Consultant, Project Staff and the FIRM shall ensure that writings, textual matter, drawings, photographs, pictures, maps and diagrams, and all materials submitted to BLGF are either (i) original with the Consultant, Project Staff, in all respects and do not infringe the copyright or intellectual property of any third party; or (ii) if there be any part of the writings, textual matter, drawings, photographs, picture, maps, diagrams, and the material, which are not of the Consultant's or Project Staff's original work, the Consultant, Project Staff, and/or the FIRM, has obtained/cleared all copyright permissions, paid all copyright or other fees for textual matter, drawings, photographs, pictures, maps, diagrams and

materials to be reproduced, and the reproduction does not infringe the copyright or intellectual property of any third party. The Consultant shall ensure that all the materials submitted are original or properly cited and quoted, with permission to use extensive passages received from the author/publisher (with proof of permission attached).

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