



TERMS OF REFERENCE

FOR THE

SUPPLY, INSTALLATION, COMMISSIONING AND TESTING OF PLANNING AND PROGRAMMING DIVISION INTEGRATED SYSTEM (PPDIS) AT CITY ENGINEERING DEPARTMENT

I. INTRODUCTION

a. BACKGROUND

The City Engineering Department (CED) deals with all engineering works and surveying of the City. It carries-out such services relative to local infrastructure projects both in horizontal and vertical, such as but not limited to road and drainage improvement and rehabilitations, city-owned building constructions and rehabilitations and slope protections along waterways / rivers / creeks.

The CED's heart and soul lies in the planning and programming. It is of utmost important to have a comprehensive planning and programming integrated system with regards to the city infrastructure projects (CIP) as well as Barangay Infrastructure Projects (BIP). It is where all the city infrastructure project begins.

The Planning and Programming Division (PPD) of the City Engineering Department is duly in-charge for the preparation of the detailed engineering documents (DED) of the prospective CIP which includes actual inspection, preliminary studies, preparation of plans, estimates, work schedule, manpower schedule, equipment schedule and technical specifications.

The key programs of the division may emanate from the CED driven-program and requesting party such as but not limited to the following:

- Local Chief Executive;
- Vice Mayor;
- Councilors;
- Other Agencies or Department;
- Barangay Officials / Kagawad;
- City Schools / Individual School Head; and
- General Public.

The preparation of DED is not as simple as it appears. It entails tedious effort for the calculation of material quantities, costs and expenses. But with the emergence of advance technologies and availability of softwares, the lengthy and tedious procedures have been sorted out.

b. RATIONALE

In line with the adaptation of a systematic collection of information for the indicative performance and status of the city projects, the Planning and Programming Division of the City Engineering Department has to develop a synchronize platform to facilitate the preparation of the detailed engineering documents with identical presentation and updated costing to avoid inaccuracies and miscalculations due to manual inputs of each items of work.

The Planning and Programming Division Integrated System (PPDIS) is a fully modified system that will unify the preparation of DED efficiently.

II. PROJECT DESCRIPTION

This PPDIS will be comprising of the following features:

1. **PROJECT REGISTRY MODULE.** The CED has an existing Correspondence Registry Module which can be improved and integrated in the system to easily update and track all the requests and correspondences to avoid duplication of projects.
2. **MY TASK MODULE.** This is a user-based dashboard used to easily view all existing tasks assigned and ongoing projects to an engineer or team.
3. **INSPECTION MODULE.** It includes generation of Mission Orders (MO), Official Business Slip (Locator Slip) and Trip Ticket to be issued to the technical inspectors wherein the numbers automatically generate. It will also update the status and results of inspection(s) that will serve as basic fundamentals in the preparation of DED. This is also capable in uploading inspection photographs and ocular sketches.

This shall be customizable platform to include **SOFTWARE FOR THE PREPARATION OF SURVEY REPORT.** It has the capability to generate topographic survey, structural survey, stationing and other related survey works.

4. **DETAILED ENGINEERING DOCUMENT MODULE.** It is the central repository of the city infrastructure project. The system is capable to provide the required report by the CED and all oversight offices within the Local Government. The reports include but is not limited to project history reports (from the request to the implementation status) and project status reports which can be consolidated per category, per district and per barangay.

This shall be customizable platform to include **the following:**

- 4.1 **COMPUTER-AIDED DESIGN (CAD) FOR THE PREPARATION OF PLANS AND DETAILS.** It replaces the manual drafting. It is a software that is used to increase the productivity of the technical staff, improve the quality of design as well as improve the communications through documentations. The CAD will be very useful in the application of **QUANTITY TAKEOFF SOFTWARE.**
- 4.2 **QUANTITY TAKEOFF SOFTWARE FOR CONSTRUCTION ESTIMATES.** It is a digital construction estimating software which is suitable for all kinds of construction projects. The digitized features enable to calculate the lengths, areas and volumes of the various items. It can also count items such as doors, windows, fixtures and accessories. The take-off quantities can be exported in Excel Files that can be adopted in the **PROGRAM OF WORK (POW) AND AGENCY ESTIMATE (AE) MODULE.**
- 4.3 **DETAILED UNIT PRICE ANALYSIS (DUPA) MODULE.** The derivation of unit cost with the following components: (1) Labor Cost; (2) Equipment Cost; and (3) Material Cost. The market values are intended for quarterly updates.
- 4.4 **PROGRAM OF WORK (POW) AND AGENCY ESTIMATE (AE) MODULE.** The detailed project cost estimate identifies the principal cost component needed to support the implementation of CIP. This includes detailed scope of works together with material, labor and equipment cost.
- 4.5 **PROJECT SCHEDULE AND RESOURCES MODULE.** This module integrates each resources in relation to project duration. This application also creates critical path schedules or so-called "PERT-CPM". This is also capable of assigning manpower and equipment resources with respect to time and project cost.

4.6 TECHNICAL SPECIFICATIONS MODULE. This is a storage of the standard / technical specifications that are commonly used in construction project. The estimator / technical staff may choose among the list which is appropriate and/or applicable to the project.

4.7 GEOGRAPHICAL INFORMATION SYSTEM (GIS). The CED has an existing GIS software which can be integrated in the system to pin the locations of the proposed city infrastructure projects to conveniently monitor which CED driven-program and/or request(s) have been addressed accordingly. This can also serve as reference and tool in accounting city infrastructure projects.

a. OBJECTIVES

1. GENERAL OBJECTIVES

To employ an integrated system in the preparation of detailed engineering design (DED) efficiently and minimizing the chance to miss any item on the scope of works, quantity of materials and miscalculation of the estimated costs.

2. SPECIFIC OBJECTIVES

- i. To address and deliver city infrastructure projects detailed engineering documents with precision, accuracy and updated market values; and
- ii. To pin the locations of the proposed city infrastructure projects to conveniently monitor which CED driven-program and/or request(s) have been addressed accordingly.

III. SCOPE OF WORKS

A. PROJECT MANAGEMENT PLAN

The Supplier / Contractor shall be responsible for the different steps in project management:

1. **PROJECT PLAN** – the overall project planning includes project timelines and deliverables, systems design, development and deployment, training and handover, and documentation. The CED shall approve the Project Plan and its components to ensure alignment of project use and purpose.
2. **SYSTEMS DESIGN, DEVELOPMENT, CUSTOMIZATION, INSTALLATION AND DEPLOYMENT** – The PPDIS' Information Technology architectural design includes data, application and technology architecture. This document will include software specifications, database structure design, system components specifications, implementation plan, network and hardware architectural design, integration plan and quality assurance and test plan which is all reviewed and approved by the CED.
3. **USER ACCEPTANCE TESTING AND REGRESSION TESTING** - Prior to acceptance of the system, several rounds of user testing shall be conducted on a test environment. This will involve the actual users of the system. The regression testing will ensure that the quality of the system will be upheld from end to end. A regular regression testing will be performed for every system changes or customization.
4. **KNOWLEDGE TRANSFER TRAINING** - The training will involve technical training for the applications, system administration and database administration who will be responsible in maintaining the systems. Training manuals and technical playbooks will be turned over after the training.

B. PROFESSIONAL SERVICES

The Project Contractor/ shall provide Professional Services:

1. **PROJECT MANAGER** - The Project Manager should have at project management experience in Systems development and implementation which includes IT infrastructure installation.
2. **SYSTEM ANALYST (1)** – System Analysts will identify and develop functionalities and modules of the system by using design techniques and implement them into the production environment
3. **PROGRAMMERS (2)** – for the development and customization of the Project and Transaction Management System
4. **DATABASE ADMINISTRATORS** – for the installation and configuration of database systems of the project.
5. **SYSTEMS ADMINISTRATORS** – for the installation and configuration of systems that includes operating systems, security systems and backup systems. These administrators will provide systems support to assure continuous operation of the systems including all servers, storages and software systems.

C. PROJECT DOCUMENTATION REQUIREMENTS

The Supplier / Contractor shall update the existing detailed business requirements. The following are the standard templates that should be submitted for review and approval of City Engineering Department – Planning and Programming Division, if applicable:

1. Project Plan
2. Basic Requirement Specification
 - a. User Maintenance
 - b. Function and Tables
 - c. Projected DB Growth (for the next 5 years)
3. Information Technology (IT) Architecture
4. Technical Design Documentation
 - a. Detailed Design Documents
 - b. Over-all Architecture (hardware, software, network, security, etc.)
 - c. Technical and User Guide
5. User Guide and Manual
6. Operations Manual

All these documents must be submitted prior to the issuance of the Certificate of Acceptance and Completion. Moreover, documentation of upgrades and fixes during the warranty period shall also be provided.

D. SUPPLIER / CONTRACTOR RESPONSIBILITIES

1. The Supplier / Contractor shall have qualified and experienced IT personnel who will provide services in the enhancement, optimization, bug fixes and implementation of PPDIS.

2. The Supplier / Contractor shall provide all necessary workstations, printers, peripherals, computer and office supplies for the use of their project team during the project duration.
3. The Supplier / Contractor shall ensure that all files and programs are backed-up to the existing storage of the end-user.
4. The Supplier's / Contractor's project team is expected to conform to the rules, regulation, safety and health protocols of the City and the Department.
5. The Supplier / Contractor shall ensure the absolute confidentiality of all information, documents or records acquired in the course of or as an incident to this Project. It shall not use or disclose to any person, firm or corporation any information hereto acquired for its benefit or to the detriment of the local Office.

IV. DELIVERABLES

The project shall cover the delivery of services for the installation, configuration, customization, testing, deployment, documentation, training and implementation of the PPDIS, which includes but not limited to the following:

A. Project Management

1. Project Plan
2. Delivery of Hardware components
3. Customization of Systems:
 - a. Application enhancements
 - b. Systems Design
 - c. System Configuration and Program Customization
4. System Integration and Testing
5. User Acceptance Testing
6. Implementation and Deployment

B. Project Documentation

C. Functional, Technical and User Trainings

D. Warranty and Support Services

E. Backup and Restore Procedure (as needed)

V. APPROVED BUDGET FOR THE CONTRACT

The total approved budget for the **PLANNING AND PROGRAMMING DIVISION INTEGRATED SYSTEM (PPDIS)** which includes the cost of all taxes such as, but not limited to value added levies and duties is **EIGHTEEN MILLION TWO HUNDRED NINETYTWO THOUSAND PESOS (PHP 18,292,000.00)** only. Any and all taxes, charges, imposts and other legal exactions due or that may become due under this contract shall be for the account of the Supplier / Contractor. The Implementing Agency shall withhold applicable withholding taxes, if any, from its payments to the Supplier / Contractor in accordance with the requirements of the law.

No Price Adjustment

The project Cost shall be fixed and there shall be no price adjustments applicable for the duration of the contract except when the operations costs are increased by more than 10% as a result of any extraordinary circumstance as determined by the National Economic Development Authority (NEDA). Pursuant to the provisions of RA 9184 and its IRR on contract price escalation. All contract price escalation shall be approved by the Government Procurement Policy Board (GPPB)

VI. TECHNICAL REQUIREMENTS

The provision of services that will ensure the overall capability and capacity of the system to include its performance, inter-operability, integration, and information exchange.

A. HARDWARE SPECIFICATIONS

1. Application Servers (1 Unit)

Processor	Intel Xeon Silver 4210R2.4G, 10core/20Thread, 9.6GT/s, 13.75M Cache, Turbo, HT (100W) or its equivalent benchmark processor
Memory	32GB RDIMM, 3200MT/s, Dual Rank (4units) or its equivalent
Hard Drive	12TB 7.2K RPM SATA 6gbps 512e 3.5in Hot-Plug Hard Drive (2 units) or its equivalent
Chassis	3.5 Chassis with up to 4 Hard Drives and 3PCIe slots
Power Supply	Dual Hot-Plug, Redundant Power Supply (1 + 1), 750W
Operating System	Windows Server 2019 Standard or latest, license for up to 16 cores
Form Factor	Tower Type
Accessories	Mouse and Keyboard (wired), similar brand of server

2. UPS Rack Type (1 Unit)

Apparent Power Output	2000 VA
Battery Chemical Composition	Lead-acid
Battery Run-time	4 minutes
Battery Type	Portable
Battery Weight	2.5kg
Form Factor	Rack mount
Communication Interface	USB, RS-232

3. Workstation (12 Units)

Processor	Intel Core i7, 11 th Generation (12mb Cache, 8C/16T, 2.5GHz-4.9GHz, DDR4-3200) or its equivalent processor
GPU	6Gb – GDDR5
Memory	16Gb DDR4-3200 U-DIMM
Storage	SATA Hard Disk Drives / 2Tb, 7.2K RPM, SATA 6.0 Gb/s, 8.89cm (3.5")
Power Supply	750W, Operating
Operating System	Windows 10 Pro / Microsoft Office Professional 2019 or latest
Monitor	24" LED IPS 75Hz, 1080p, vga HDMI

Accessories	Mouse and Keyboard (wired), same brand of the unit with UPS, 500VA or higher
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4. Laptop (1 Unit)

Processor	Intel Core i5, 10 th Gen (8Mb Cache, 4C/8T 2.50GHz – 4.5GHz Max Turbo) or its equivalent
Screen	15.6” FHD (1920 x 1080) 120Hz
GPU	4Gb-GDDR6
RAM	16GB
Storage	1Tb HDD + 256Gb SSD
Operating System	Windows 10 Pro / Microsoft Office Professional 2019 or latest

5. High Speed Scanner (4 Units)

Scanning Face	Duplex
Scanning Method	Colour CIS (600dpi) / Black or White Background
Scanning Resolution	100 – 1200dpi
Scanning Speed	Simplex – up to 65ppm Duplex – 130ipm (Binary/Colour A4 size 200/300dpi)
Document Paper Size when 1 page	1.9in x 2.1in – 8.5in x 220in.
Feed Tray Capacity	Up to 100 sheets
Daily Duty Cycle	8000 sheets
Automatic Detection	Intelligent Double Feed detection using ultrasonic sensor
Image Compression	MH, MMR, JPEG
File Output	PDF, PDF/A, Searchable PDF, JPEG, JPEG2000, TIFF, BMP, can convert word/excel/Powerpoint

6. Large Format Scanner, Color scanning (1 Unit)

Maximum Scan Width	44 in.
Maximum Media Width	47.2 in.
Data Capture (color/mono)	48-bit
Scanning Speed	150 dpi - 3.8 in/sec 300 dpi - 1.9 in/sec 600 dpi - 1.0 in/sec
CIS Technology	Clean Scan CIS
Maximum Media Thickness	0.75mm
Scan to USB	Yes, USB 3.0
Processor	Atom Quad-core
Memory	RAM - 8GB Flash - 16GB

7. Continuous Ink System Printers (12 Units)

Print Resolution	Up to 1200 x 4800 dpi
Print Speed	Up to 22 ipm (mono) and 20 ipm (colour)
Paper Size	Up to A3 size

8. Data Cabinet (1 Unit)

- a. 19" wide with at least 4 rack units, Standard Racking system
- b. Front & back door with spring lock, detachable slide panel with lock
- c. Adjustable square holed mounting rail with cage nuts & bolts, powder coated finish, black
- d. With 4 units Castor wheel with leveling feet
- e. With 4 units Exhaust Fan, 220V with cable entry at the top panel
- f. Vertical cable manager at the back
- g. With 15 outlet PDU with 3.0mm cable length (220V, 3prong, 10A)

9. Local Area Network Specifications

- Structured cabling with Patch panels and patch cords
- Switch/Router for SOHO

24-ports Switch (3 Units)	
Total 10/100/1000 copper ports	24 ports
Uplink Configuration	4 x 1G/10G fixed uplinks
DRAM	2GB
Flash	4GB
MTBF	525, 990 hours
Power Supply	125W
Input-voltage range and frequency	100-240VAC, 50 to 60Hz
Input Current	1.6 - 0.7A
Output Ratings	12V at 10.5A
Capable of DHCP Snooping (to prevent unexpected / unauthorized IP leasing)	YES

10. Cable Management / Miscellaneous

- a. 24 port Patch Panel Cat6
- b. IO Outlet Cat6
- c. 1 RU Cable Management
- d. UTP Patch Cord Cat6 (2.0M data)
- e. UTP Patch Cord Cat6 (3.0M data)
- f. Faceplate (Simplex / Duplex)
- g. 12 port Optical Distribution Frame
- h. Moldings
- i. Cat6 Cable – 3 boxes (305 meters / box)

B. SOFTWARE SPECIFICATIONS (ENTERPRISE-WIDE LICENSES)

1. DATABASE MANAGEMENT SYSTEM

- Server Installation Package

2. SOFTWARE TO GENERATE SURVEY REPORT

- Compatible with the Operating System - Windows 10 64 bit
- Unrestricted connection is required for activating the product, receiving updates, viewing the help files, etc.

3. COMPUTER-AIDED DESIGN (CAD)

- Compatible with the Operating System - Windows 10 64 bit
- Unrestricted connection is required for activating the product, receiving updates, viewing the help files, etc.
- To use the Excel Functions, local-installation of a supported version of Microsoft Excel.
- Microsoft Outlook for exporting / sending projects to other users.

4. QUANTITY TAKEOFF SOFTWARE

- Compatible with the Operating System - Windows 10 64 bit
- Unrestricted connection is required for activating the product, receiving updates, viewing the help files, etc.
- To use the Excel Functions, local-installation of a supported version of Microsoft Excel.
- Microsoft Outlook for exporting / sending projects to other users.

5. GEOGRAPHICAL INFORMATION SYSTEM (GIS) – EXISTING SOFTWARE FOR INTEGRATION

- Compatible with the Operating System - Windows 10 64 bit
- Unrestricted connection is required for activating the product, receiving updates, viewing the help files, etc.
- To use the local-installation of a supported version of Microsoft Office.
- Microsoft Outlook for exporting / sending projects to other users.

6. PROJECT SCHEDULE AND RESOURCES

- Compatible with the Operating System - Windows 10 64 bit
- Unrestricted connection is required for activating the product, receiving updates, viewing the help files, etc.
- To use the Excel Functions, local-installation of a supported version of Microsoft Excel.
- Microsoft Outlook for exporting / sending projects to other users.

7. PROGRAM OF WORK (POW) AND AGENCY ESTIMATE (AE) MODULE / PROJECT SCHEDULE MODULE / TECHNICAL SPECIFICATION MODULE

- JAVA application
- Server and Client Installation Package
- Application System Software
- Client Runtime

Note : The Supplier / Contractor shall turn-over all the software / application installer and all necessary tools.

C. MANAGED SERVICES

1. Project Management

- Project Kick off
- Qualified Project Manager and PM Team
- Full Documentation on Project implementation
- Connectivity to existing IT environment and conditions
- Regular updating and reporting to Project Owners and Steering Committee

2. Customization

- System enhancement/change including development, testing, deployment, training and warranty
- Support on system and data administration to ensure optimum performance of the system
- Telephone, email and onsite support

3. Training and Manuals

- Knowledge transfer training on application fixes, enhancements, technical configuration, system administration and database support and other troubleshooting encountered during the implementation of this project.
- Classroom Training (minimum of 20 persons / 24 hours / on-site)
- User Manuals

D. WARRANTY, MAINTENANCE AND SUPPORT

1. One (1) day response time for critical issues/Priority 1 for resolution within twenty-four (24) hours.
2. One (1) year coverage after full acceptance of project.
3. The hardware and system shall be free from any and all defects for a period of one (1) year from date of delivery and acceptance of the project.

E. TECHNICAL FEATURES

The PPDIS .net, C# and SQL WEB based system for flexible accessibility to users and executives which aim to deliver an end-to-end solution that will improve performance of the City Engineering Department in the preparation of Detailed Engineering Documents.

1. **PROPOSED CIP MANAGEMENT SYSTEM** – Registration, tracking and updating of CIP based on requests and correspondences. The system will remind the user that the received documents have to be addressed within the limit set-forth by the Division / Department
2. **DOCUMENT MANAGEMENT SYSTEM** – The PPDIS will restrict all scanning and document uploading to itself. Only thru the PPDIS shall all DED preparation updates be performed. The PPDIS is a “Semi-Paperless System” with seamless routing combined with file sharing. There is an access level system to ensure security and privacy. The DMS sub-module will handle regular and large-scale documents such as engineering plans and other pertinent documents. This document will be searchable and linked to each Engineering Project information.
3. **DED MONITORING AND WORKFLOW MANAGEMENT SYSTEM** – Registers CIP and its attributes such as agency cost estimate, program of work, bill of quantity (BOQ), DUPA, work schedule, cash-flow, PERT-CPM, resources schedule and technical specifications. This system provides online status on each phase of the DED preparation on its updated schedule, tasks and accomplishments. The system use Work Breakdown Structures (WBS), Gantt charts and Notification or Alert systems to ensure awareness of each team of their target deadlines.
4. **REPORTS GENERATION** – the reporting module is capable to provide customizable reports for individual and department purposes. Customization of reports can be based on selected bulk projects, status and accomplishment reports. It has a dashboard to support the needs of the CED, oversight and executive departments of Quezon City. Dashboards will use charts and diagram to manage administrative and procedural data of each project for strategic, operational and analytical purposes that will be used for decision support.

VII. PROJECT DURATION

Project duration is for a period of three hundred sixty (360) calendar days upon the receipt of Notice to Proceed (NTP), maintenance is a period of one year after the acceptance or the production of the system. The delivery schedule expressed as calendar days stipulates the project delivery date.

Item No.	Description	Delivered (Days)
1	Submission of Project Plan	Within 30 days upon the receipt of the NTP
2	Delivery and Installation of Hardware Components (server, workstation, high speed scanner, printers, laptop, etc.)	Additional 30 days (31 st day to 60 th day) upon submission of Project Plan
3	Design and development of PPDIS Customization (data administration, formulation of auto-fill out information on the worksheet, cross-referencing of build-up data, scanning, evaluation, test runs and debugging), deployment and implementation of PPDIS	Additional 210 calendar days (61 st day to 270 th day) upon delivery and installation of hardware components (server, workstation, high speed scanner, printers, laptop, etc.)
4	Documentation and Knowledge Transfer training	Additional 90 calendar days (271 st day to 360 th day) upon the design, development, customization, deployment and implementation of PPDIS

VIII. TERMS OF PAYMENT

- 15% - upon submission of Project Plan
- 25% - upon delivery and installation of Hardware Components (server, workstation, high speed scanner, printers, laptop, etc.)
- 40% - upon completion of the Planning and Programming Division Integrated System (PPDIS)
- 20% - upon full completion of the project including documentation and Knowledge Transfer Training

IX. PENALTIES FOR BREACH OF CONTRACT

Failure to deliver the services according to the standards and requirements set by the City shall constitute an offense and shall subject the Contractor to penalties and/or liquidated damages pursuant to RA 9184 and its Revised Implementing Rules and Regulations (IRR).

X. CANCELLATION OR TERMINATION OF CONTRACT

Should there be dispute, controversy or difference between parties arising out of this TOR, the parties herein shall exert efforts to amicably settle such dispute or difference. However, if any dispute, controversy or difference cannot be resolved by then amicably to the mutual satisfaction of parties, then the matter may be submitted for arbitration in accordance with the existing laws without prejudice for the aggrieved party to seek redress before a court of competent jurisdiction.

The guidelines contained in RA 9184 and its Revised Implementing Rules and Regulations (IRR) shall be followed in the termination of any service contract. In the event the City terminated the Contract due to default insolvency, or for cause, it may enter into negotiated procurement pursuant to Section 53(d) of RA 9184 and its Revised Implementing Rules and Regulations (IRR).

XI. PROOF OF CONCEPT

The winning bidder shall provide a proof of concept (POC) of the system that will be used in this project. The POC shall present a system that has the functionalities and expected performance that is acceptable to the City Engineering Department. The POC shall be completed as part of the Post Qualification Process.


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