Road Transport IT Infrastructure Project Phase II

Republic of the Philippines

DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS and LAND TRANSPORTATION FRANCHISING AND REGULATORY BOARD

Project Information Memorandum

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Purpose of this IM

The purpose of this IM is to provide general information to prospective bidders on the assessment of project potential and related informational aspects of the Road Transport IT Infrastructure - Phase II Project. Information contained in this IM shall provide an overview of the project development and its related aspects for reference purposes and information contained herein may be put to use, subject however to the prospective bidders' own discretion and conduct of due diligence.

Contents

1. Introduction

Road Transport Information Technology Infrastructure Project Phase II (PPPC/ADB/IDCA/029) is a part of a wider push to drive the implementation of information and communication technology within government organizations. To achieve this, Department of Transportation and Communication (DOTC) has decided to implement the IT Infrastructure project in Land Transportation Franchising & Regulatory Board (LTFRB).

LTFRB is a frontline attached agency of the DOTC and primarily mandated to enforce and regulate a progressive land transport sector in the Philippines. Created by virtue of Executive Order 202, the major powers and functions of LTFRB include the following: issuance of franchises, Certificates of Public Convenience (CPC), and permits; setting and regulation of fares; identification of routes; enforcement of laws; ensuring safety, comfort and convenience of travelling public; and interconnectivity with other agencies.

Franchising Function/ Issuance of Certificates of Public Convenience (CPC)

LTFRB discharges the Franchising function through issuance, amendment, and cancellation of Certificate of Public Convenience (CPC). The CPC is an authorization issued for operation of public service land transport. Obtaining CPC is a mandatory requirement for operating any public land transportation services within the Philippines except in case of Philippines National Railways (PNR) and Light Rail Transit Authority (LRTA). Some of the salient points regarding CPCs have been outlined below:

- The certificate of public convenience is issued to a franchisee allowing the holder to operate the pre-specified number of motorized vehicles of a particular category (truck/ taxi/ public utility bus/ public utility jeepneys) on a fixed or non-fixed route.
- The number of units allowed on a particular route, as applicable for Public Utility Bus (PUB) / Public Utility Jeepneys (PUJ), is determined by the Route Measuring Capacity (RMC) as issued by the DOTC for that vehicle of a particular denomination for that route.
- The CPC thus issued is valid for a period of five years, after which it can be renewed for another five years. However, the franchisee is required to apply for confirmation of all its units annually.

Currently, the LTFRB operates via a central office in Quezon City, Manila and 16 regional offices spread across the Philippines. LTFRB presently handles over 1 million transactions a year across all regional offices. The LTFRB has a number of client services being handled manually at present. These transactions are long drawn and often take several months to complete. It also requires the

operators and their representatives to make multiple visits to the LTFRB, resulting in a loss of income to the operators and the economy as a whole.

This project therefore aims to deliver a transparent and efficient franchising system through streamlining of LTFRB's current processes and automation and is expected to: (a) clean up existing data, (b) enhance data collection, processing, and integration within the LTFRB and among related agencies, (c) decrease processing time, (d) promote transparency and ease of use, and (e) improve access to public information and channels for feedback.

2. Project Development Objectives

2.1 Project Impacts & Key performance indicators

The project aims to provide efficient, transparent and timely services to the Operators and thus enable effective monitoring and control over the commercial operations of public land transport services in the entire Philippines. The key impacts that are expected from this project include:

2.1.1 Reduced time for transactions

Currently transactions at the LTFRB can take long time to complete. It is expected that the introduction of online services coupled with improved business processes will help remove bottlenecks in the application process and enable a more efficient application process that would reduce the time taken for applicants to receive decisions.

2.1.2 Improvement in customer satisfaction

The overall aim of the project is to improve customer satisfaction for all applications received across the LTFRB. This is expected to be achieved via easier submission of applications, faster processing and reduction in number of trips to the LTFRB. The project would also have a customer dashboard to help operators track the status of their applications, and give easy access to key action items.

2.1.3 Reduction in workload for employees

The LTFRB is currently understaffed and is unable to handle the large number of applications it receives on a daily basis. The introduction of Information Technology (IT) Infrastructure will help reduce the load on employees and enable them to perform their responsibilities more effectively and efficiently.

2.1.4 Reduction of paper based manual transactions

Applications are currently received manually by the LTFRB and require multiple copies of the same application. In addition, a number of applications have similar documentary requirements resulting in a massive wastage of paper and resources. With the introduction of online applications and automation, it is expected that the amount of paper required will reduce, resulting in a benefit to the environment.

2.1.5 Improved reporting and business intelligence

The introduction of automation and information technology is also expected to result in an improvement of reporting standards within the bottleneck. The top management will be able to get a

comprehensive view of the processes within the LTFRB and be better able to identify bottlenecks within the process. In addition, data related to filing fees, fines and penalties and transactions will be adequately captured, leading to better and more improved capturing of data.

2.1.6 More transparent operations

The project will also introduce concept of public dashboard that shall disseminate all the relevant information regarding CPC availability, upcoming hearings, and other relevant information. By making these information available in the public domain, the project aims at increasing the level of transparency in LTFRB operations.

3. Regulatory and Legal Framework for the Project

Through Executive Order No. 202, LTFRB has been mandated to "issue, amend, revise, suspend or cancel Certificates of Public Convenience or permits authorizing the operation of public land transportation services by motorized vehicles" (Republic of the Philippines 1987).

Section 6 of EO 202 provides that the LTFRB Board, in the exercise of its powers and functions, shall sit and render its decision en banc. Every such decision, order, or resolution of the Board must bear the concurrence and signature of at least two (2) members thereof. The decision, order or resolution of the Board shall be appealable to the Secretary within thirty (30) days from receipt of the decision: Provided, that the Secretary may motu propio review any decision or action or the Board before the same becomes final.

Currently the responsibility of determination of Route Measured Capacity (RMC) rests with the DOTC, and the LTFRB in coordination with the DOTC is ensuring that the RMCs are implemented suitably.

LTFRB is also mandated "to promulgate, administer, enforce, and monitor compliance of policies, laws, and regulations of public land transportation services" (LTFRB, 2014). It is the agency involved in route planning and fare review and adjustments.

Section 5 of EO No. 202 empowers the LTFRB to prescribe, approve, and periodically review and adjust fares and charges related to the operation of public land transportation services. Pursuant to EO 292 and Commonwealth Act ("CA") No. 146 or the Public Service Act, the LTFRB promulgated its Revised Rules of Practice and Procedure dated September 1, 2011 (the "2011 LTFRB Rules"). The 2011 LTFRB Rules prescribe, among others, the procedure for undergoing fare adjustments by the LTFRB.

Further, the LTFRB currently operates in a manual environment resulting in inefficiencies, delays and absence of requisite data and information at various levels. To overcome this, the LTFRB has decided to review its core business processes and assess the implementation of revised processes in an IT environment using public private partnership mode of implementation.

Like all projects pursued under the Public Private Partnerships ("PPP") program in the Philippines, Republic Act No. 6957,[1] as amended by Republic Act No. 7718, otherwise known as the BOT Law,

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[1] An Act Authorizing the Financing, Construction, Operation, and Maintenance of Infrastructure Projects by the Private Sector, and for Other Purposes

is the primary governing law for this project. The BOT Law provides the legal framework for the private sector to undertake the financing, construction, operation, and maintenance of infrastructure and development projects normally financed and undertaken by the Government.[2]

The Private Project Proponent is required to be registered for VAT purposes and must also maintain separate books of accounts in connection with its joint venture operations.[3]

The project also requires compliance with the Medium-Term Information and Communications Technology Harmonization Initiative (MITHI) of Republic of the Philippines. MITHI is an e-Government and ICT support initiative that aims to harmonize ICT-related resources, programs and projects in all agencies and on all levels of the bureaucracy. The following are the objectives of MITHI: (a) To ensure a systematic process for the planning, budgeting, implementation, monitoring, and evaluation of government-wide ICT projects; (b) To ensure the coherence of ICT programs and projects of the Government and its consistency with the five (5) Key Result Areas (KRA) of the Administration as laid out in EO no. 43 and the Philippine Development Plan 2011-2016; and (c) To promote synergy among government agencies in planning and implementation of on-going and upcoming ICT programs and projects.

The Project further needs to ensure that the development of the IT Infrastructure System of LTFRB should be compliant with the Government Information System Plan of Republic of the Philippines.

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[2] Sec. 1, RA 6957, as amended.
[3] See BIR Ruling No. 199-13 dated May 21, 2013.

4. Current Status of processes and IT Implementation within LTFRB

This section highlights the current organizational, process and IT infrastructure assessment of the LTFRB:

4.1.1 Organisational as-is assessment

The LTFRB is currently divided into 5 divisions at the central office and 3 sections at the regional offices. The divisions at the central office are:

a) Administrative Division

b) Finance Division

c) Technical Evaluation Division

d) Legal Division

e) Information Systems and Management Division

The three sections at the regional offices are:

a) Administrative Section

b) Technical Evaluation Section

c) Legal Section

The detail of LTFRB office locations is provided in *Annexure-1*.

4.1.2 Process Assessment

The customer oriented core processes within the LTFRB are laid down in its Citizen's Charter 2014. The Citizen's Charter lists 27 types of applications which are accepted by the LTFRB. These are broadly divided into three categories

a) Simple Transactions – Transactions which do not require LTFRB Board approval;

b) Complex Transactions without hearing – Transactions which require LTFRB Board approval but do not require the applicants to go through a hearing process with the legal division/ section of LTFRB; and

c) Complex Transactions with hearing – Transactions which require the applicant to go through a hearing process with the legal division/ section of LTFRB, post which LTFRB Board may grant approval.

The following table provides a list of application under these categories

Sl No	Process
Complex Transactions with hearing	
1.1	Issuance of Certificate of Public Convenience (CPC)
1.2	Extension of validity
1.3	Sale and Transfer of CPC
1.4	Amendment of CPC
1.5	Consolidation of Cases
1.6	Interchange of Units
1.7	Adoption of Color Scheme
1.8	Change of Grantee
1.9	Change of Name
Complex Transactions without Hearing	
1.10	Dropping and Substitution of Units
1.11	Dropping of Unit
1.12	Upgrade or Downgrade of Unit
1.13	Registration in Lieu of Authorized Unit
1.14	Re-Registration of Unit
1.15	Adoption of Trade Name
1.16	Change of Civil Status
1.17	Change of venue of LTO Registrations
1.18	Correction of Typographical errors in the decision
1.19	Special Permit
1.20	Authority to install advertising signs on an authorized unit
Simple Transactions	
2.0	Franchise Verification
3.0	Clearance of Accounts
4.0	Confirmation of Units
5.0	Confirmation Certificate and Sticker
6.0	Special Trip
7.0	Inspection, Sealing and Resealing of Taxi Units
8.0	Certified Photocopy of Order, Decision and Fare Matrix (ISMD)

4.1.3 IT infrastructure assessment

The section below details out the current status of information technology within the LTFRB.

Client Hardware

The following table captures the current state of Infrastructure of LTFRB in terms of number of functional units and laptops spread across LTFRB offices:

Region	Functioning Units	Total No. of Laptop	Total No. Functioning Units
1	18	2	20
2	18	2	20
3	16	2	18
4	16	2	18
5	17	2	19
6	17	2	19
7	16	2	19
8	16	2	18
9	14	2	16
10	15	2	17
11	13	2	16
12	15	2	17
NCR	24	2	26
Central Office	119	15	134
Total	334	41	377

Hardware Inventory at LTFRB as of December 2014

IT Application Infrastructure

Development Platform

The key application supporting various activities pertaining to a CPC/ Franchise is Franchisee Processing Application (FPS). The application was developed in FoxPro and is available across all offices. However, the application is not capable of supporting financial aspects, for example fees paid, related to an application. To overcome the limitation, another application referred to as Franchisee Information System (FIS) was developed. However, the application could not be developed fully, and is used only within the Central Office for fees assessment and payment related information. Other offices use paper trails, or excel files, to store financial information.

FPS does not have a central dedicated server, and is based on a distributed architecture across various offices. The server configuration of FIS server is listed in the following table:

Type	Version/Count
Operating System	Microsoft Server 2003
Database	Microsoft SQL 2005
Database Capacity	2 GB
Database Size	1.5 GB
Firewall	CSA (Obsolete)
Exchange Server	2 (Not in use)
Domain Server -2	Working
Backup Database	Not in use

Server Setup

The following diagram shows various functions of the FPS application. As discussed earlier, it should have been retired post the implementation of FIS; however, owing to issues with implementation it is operational till date. The application also has features for various reports, though these are not used frequently and the reports are usually generated via excel.
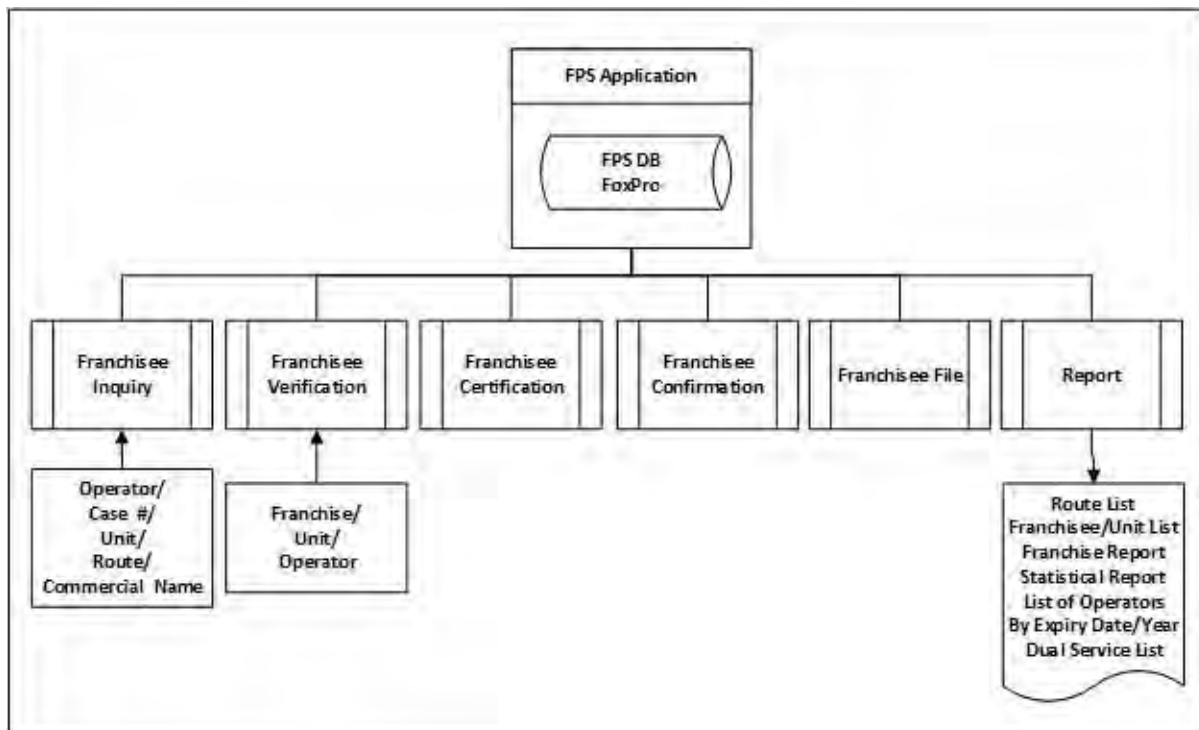
Key activities FPS Application

The applications also have an interface with the LTO system, and the data pertaining to units registered as commercial vehicles is transmitted to LTO via a proxy server installed within LTFRB premise. However, LTFRB does not have interface to receive information from LTO, and applicants have to manually produce proof of vehicle registered as commercial vehicles with LTO.

Report Generation

The following diagram depicts various steps in report generation. The process is essentially a manual process – regional offices email excel based files to the central office and the central office then manually consolidates these files and generates the required reports.
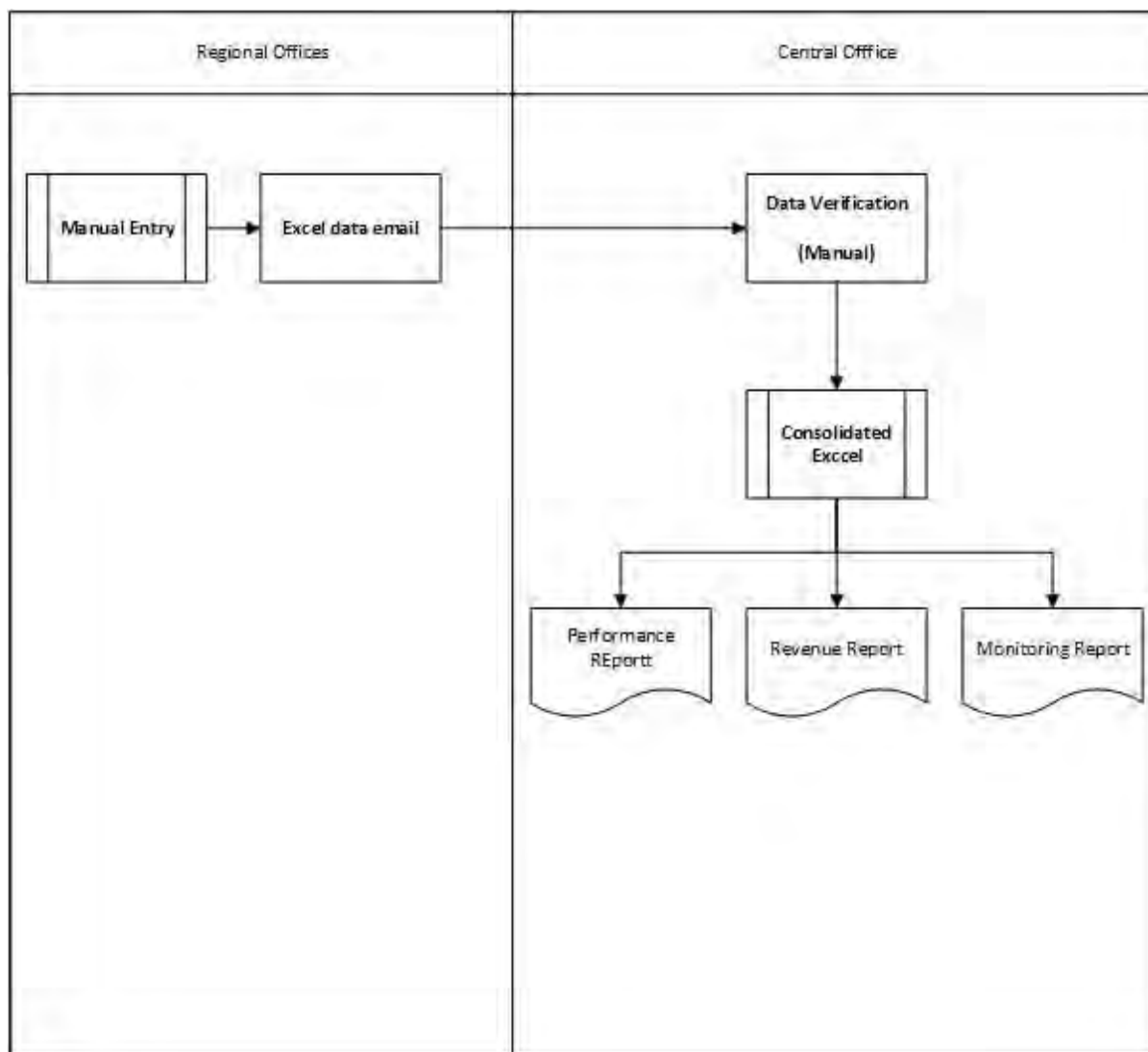
MIS report generation

5. To-Be Process Mapping of LTFRB

The following guiding principles may need to be adopted during the design of the to-be processes of the LTFRB:

- Reduction in the degree of operator visits to the LTFRB office
- Reduction in the degree of paperwork conducted by both the operators and the LTFRB officials
- Faster Processing of Application Requests
- Freeing up LTFRB resources by conducting manual/routine jobs through the system

5.1 To Be Processes

While the application categories would still fall under simple applications, complex without hearing applications, and complex with hearing applications, the applications within each category would be required to be reduced in line with the above principles. For example, the applications pertaining to Franchisee Verification and Unit confirmation could be dropped since they would not be required in an online automated environment. Similarly, the applications pertaining to confirmation of units and issuance of sticker would be merged. The rationale behind such mergers is to streamline processes and merge dependent transactions together, leading to considerable simplification in the performing these transactions in the proposed IT environment.

Additionally, the To-Be processes for two other important functions need to be designed which are not covered in the Citizen's Charter currently,

- Grievance Redressal and
- Fare Revision

The following table lists the updated application types within each category:

SI No	Process
Complex Transactions with hearing	
1.1	Issuance of CPC including provisional CPC issuance
1.2	Extension of validity
1.3	Sale and Transfer of CPC
1.4	Amendment of CPC
1.5	Consolidation of Cases
1.6	Interchange of Units

1.7	Adoption of Color Scheme
1.8	Change of Grantee
1.9	Change of Name
Complex Transactions without Hearing	
1.10	Dropping and Substitution of Units
1.11	Dropping of Unit
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Simple Transactions	
2.0	Confirmation of Units and issuance of sticker
3.0	Special Trip
4.0	Inspection, Sealing and Resealing of Taxi Units
5.0	Certified Photocopy of Order, Decision and Fare Matrix (ISMD)
6.0	Grievance Redressal
7.0	Fare Revision

In addition to the above, the LTFRB also submits a number of reports to the Commission on Audit (CoA) and the Department of Budget and Management (DBM). The Private Project Proponent would also be required to generate MIS reports related to the revenue collected from transactions as required by the LTFRB for their reports.

5.2   Proposed Solution

The proposed solution is based on the tenets of availability, security and transparency.

The new system would be a centralized web-based solution that would be accessed by both LTFRB office users and applicants with regards to various application related activities. Users would access the website to initiate the application, make payments, upload documents and check the status of applications, while LTFRB office users would use the website to confirm the documents, and take decisions on the application. The website would be hosted on centralized data servers and would determine users' privileges based on their access rights. The solution would also have a disaster recovery center to ensure seamless services to all users. The offices would connect to the data centers via internet connectivity provided by two internet service providers at each office location.

The solution will have latest security provisions via firewalls, latest hardware configurations, and antivirus, to ensure adequate security and data backup. Only designated users will have access to server rooms via biometric and related solutions. The data would be backed up automatically via the tape drives and well-designed system solutions. The provision of dedicated disaster recovery site is also recommended to ensure backup in case of any eventuality with the main data center.

The system would also enable greater transparency for all stakeholders - operators, LTFRB, and the public. Operators will have the option to check the status of their application and thus help them understand the issues with their application. They would also get regular updates and alerts regarding their application status automatically via the system. The system would provide LTFRB management with a dashboard regarding various key Service Level Agreements (SLAs); for example, they would have information on the turnaround time of various offices and identify the steps, or offices, that consume the maximum time. This would enable LTFRB to provide optimal levels of service to the operators and the public. The solution would also provide greater transparency to the general public by enabling LTFRB to automatically share data on its website. For example, LTFRB could require the applicants to post notices on the LTFRB website and thus help the other stakeholders and the public gain more insight into LTFRB operations and enhance transparency in the processes.

5.2.1 Key Solution features

The key features include:

All the system users, at all levels, will have unique user ID and password

In the new system, all the users of LTFRB as well as the registered operators will have unique user id and password to access the system. This will lead to increased accountability in the functioning of LTFRB and create an audit trail of the activities performed by each user.

Submission of Online Applications

For operators who are already registered in the system, all subsequent applications for new CPC or applications related to a particular CPC for simple as well as complex transactions will be submitted through the online mode only. In case the applicant is not able to submit online application on his/her own, there will be a provision for a kiosk for facilitating submission of online application. Each submitted application will have a Unique Application Number (UAN) that will be used to track the application status by the applicants at a real-time basis. All payments will be through Bank

All the payments made by the applicant to the LTFRB shall be made through the banking channel through both online and offline modes. In case of online payment, the applicants will receive instant acknowledgement from the system regarding the payment status. The application processing being carried out at LTFRB end shall commence once the applicable fees for the transaction (including applicable fines and other charges) have been paid by the applicant and the payment has been successfully reconciled.

Automated Workflow Management System

All the internal LTFRB process flows will be computerized through workflow system. For example, generation of notice of hearing, initial drafting of decision order, final decision order, inspection report, etc. will be generated from the system with complete audit trail of the changes made on the same by various LTFRB officials.

All the internal approvals provided by an LTFRB user on a particular transaction will be deemed as signed by the user. This will obviate the requirement for printing a physical copy and putting a manual signature. It has also been proposed that only in case a certificate or a document is being shared with an external stakeholder, like operators or other government agencies, the same shall be physically signed by the appropriate LTFRB authority.

Automated Document Management System

With a view to reducing the number of physical documents submitted by the applicants for a particular transaction, it has been proposed that verification of information will be performed through the system to the extent possible. The applicants will also be given the option to upload scanned

copies of the required physical copies into the system which can be retrieved and validated by the LTFRB staff.

The supporting documents shall be verified only at one stage during the course of the transaction. This will substantially reduce the quantum of paperwork in the system. For example, during a complex transaction with hearing (other than application for new CPC), a supporting document shall be verified either by TED or Legal Division but not both. This will significantly reduce the process time required for the transaction

Automated Inter-departmental data exchange

The IT system for LTFRB will have the provision to interface/integrate with automated systems of the various agencies that interact with LTFRB (DOTC, LTO, DOLE, etc.). This will ensure further lead to reduction in the number of hardcopies required to the submitted by the applicants since necessary validations can be performed by LTFRB by accessing required data from the other agency IT systems. For example, during the application for new CPC, the system can validate the authenticity of the CRs (for the proposed units) and RMC through data exchange with the LTO system and DoTC system respectively.

Operator's Dashboard

The system shall have a dashboard for operators that shall present the key set of information regarding different CPCs, vehicles registered under each CPC and key action items pending with each CPC/ vehicle. The dashboard shall also present a notification area regarding key notifications from LTFRB, and an application area to initiate new applications and track the status of various applications.

The dashboard shall also have a provision for generating automatic alerts (in the form of SMS or email notifications) to the operators for performing mandatory/key transaction such as annual confirmation of units and extension of CPC validity. This will provide a timely reminder to the operators and facilitate them in carrying out their transactions within the prescribed deadline and reduce the incidence of fines and other charges.

LTFRB Dashboard

The system shall have a dashboard for LTFRB officials at each level. The dashboard will display the applications pending with the employee for approval, or for other actions. The entire application history, including division/ section wise comments by other users, will be displayed automatically based on defined rules.

The dashboard will also display reports pertaining to applications, and shall automatically display the reports based on employee level. For example, the senior management will be able to see performance of each division/ section while the division chiefs will only be able see performance of officials under them.

Public Dashboard

The system shall have a dashboard for public to ensure greater transparency within LTFRB operations. The dashboard will display information regarding upcoming hearings, the franchisee database/ CPC related information, CPCs available for sale, and other information that LTFRB deems essential to be shared with public. The dashboard will automatically collate the relevant information from various applications and display the same. However, some information could require approvals from identified LTFRB officials.

6. Information Technology Requirements and Design

6.1 IT Client Hardware Recommendations

This section recommends the changes required for an optimal state of IT hardware within LTFRB.

6.1.1 Client Hardware

The project would require around acquisition of around 117 PCs that would be used to replace obsolete PCs at various LTFRB offices. Some of these machines would also be used as helpdesk kiosks at LTFRB offices. These would be provided by the private project proponent. The minimum recommended configuration of these PCs is listed in the following section:

- Processor: 4th Generation Intel® Core™ i3-4130 (3M Cache, 3.4 GHz)

- Operating System: Windows® 8 64 bit

- Memory: 8GB DDR3 1600MHz (2x4GB)

- Hard Drive: 500GB 7200 RPM

- Optical Drive: DVD-RW

- Networking and Wireless: 10/100/1000 Gigabit, Dell Wireless-N 1705 @ 2.4GHz (or equivalent)

- Monitor: 23 inches WLED Non touch Display

- Keyboard: US English Qwerty USB Keyboard

6.1.2 Office Productivity Tool

Since the proposed solution is a web based system, no special productivity tool would be required for integrating the machines with the proposed solution. It would however, require these machines, and existing machines to have the latest versions of MS Office, acrobat convertor and other essential software required to support the application.

6.2 IT Server and Network Infrastructure Recommendations

6.2.1 Network

The project would have structured Local Area Network (LAN) cabling across all offices. It would have 2 Internet Service Providers (ISPs) at each location to ensure adequate redundancy. The following diagram gives an overview of the proposed network:
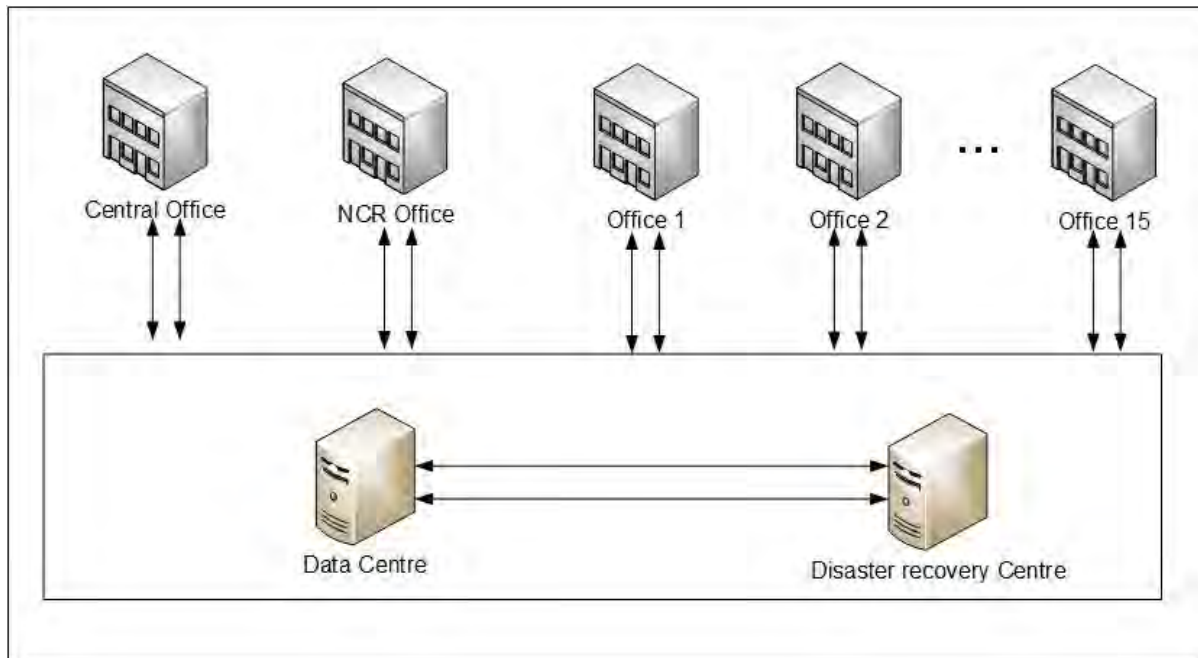
Proposed Network diagram

The minimum requirements of the ISP would include:

1. Availability: The Communications Backbone should be available to the customer free of Network Outages 99.5% of the time. The connection should be wired industry grade Ethernet link.

2. Packet Loss: The average monthly Packet Loss on the Communications Backbone should not exceed 0.1%.

3. Latency: The average monthly Latency on the Communications Backbone should be 130 milliseconds or less

4. Jitter: The Average Jitter on the Communications Backbone should be 250 microseconds or less.

5. Maximum Jitter: The Maximum Jitter on the Communications Backbone should not exceed 10 milliseconds more than 0.1% of a calendar month.

6. <u>Minimum Speed:</u> minimum internet speed is expected at 4 Mbps at the Central Office, and NCR office and 2 Mbps at other offices. The minimum speed at the Data Centers should be 20 Mbps.

7. Owing to potential connectivity issues with the following offices, it is also recommended to have an additional third back up (apart from 2 ISP connections) of cellular network based 3G connectivity to ensure seamless services:

   a. LTFRB REGIONAL OFFICE NO.II
      i. Address - CARIG Regional Center, Tuguegarao, Cagayan 3500
      ii. Issue – Mountainous

   b. LTFRB REGIONAL OFFICE NO. IX
      i. Address – Macrohon Bldg., Baliwasan Chico Zamboanga City 7000
      ii. Issue – Intermittent connection

   c. LTFRB REGIONAL OFFICE NO. XI
      i. Address – Balusong Ave., McArthur Hi-way Matina, Davao City 8000
      ii. Issue - Cable Theft Problem

   d. LTFRB REGIONAL OFFICE NO. XII
      i. Address – A. Macrohon Bldg., Baliwasan Chico Zamboanga City 7000
      ii. Issue - Intermittent connection

   e. DOTC CORDILLERA AUTONOMOUS REGION
      i. Address – DOTC Cordillera Administrative Region, Baguio City
      ii. Issue - Mountainous

6.2.2 Server and Mainframes

LTFRB does not have any mainframe based systems for data storage or retrieval and it is not recommended to deploy the same for the proposed architecture. While LTFRB has servers that are used to support the FPS and related applications, these servers would be retired post new solution deployment.

The new solution would require the following server configurations at the main Data Centre in an active-active configuration. The Disaster recovery center would have single instance of each of the server type listed below. The table is only indicative and the actual count could be higher depending on the solution deployed, or lower owing to server virtualization.

Type	Version/ Count
Application Server – Production	Windows Server or Linux – 2 instances
Application Server – QA/ Test	Windows Server or Linux – 1 instance

Type	Version/ Count
Application Server - Development	Windows Server or Linux – 1 instance
Workflow Management System	Windows Server or Linux – 2 instances
Document Management System	Windows Server or Linux – 2 instances
DB Server	Windows Server or Linux – 2 instances
Exchange Server	Windows Server or Linux – 2 instances
Web Server	Windows Server or Linux – 2 instances
Firewall Server	Checkpoint/ Fortinet or equivalent - 2 instance
Domain Server	Windows Server or equivalent - 2
DHCP Server	Windows Server or equivalent - 2
DMZ/ Bastion Server	Windows Server or equivalent – 1
Anti-virus Server	MacAfee/ Symantec or equivalent - 1
Archive/ Backup Server	IBM/ HP/ Dell/ Symantec or equivalent - 1
Disk Storage	IBM/ HP/ Dell or equivalent – 1

Server Setup

Note: The number of servers and product versions mentioned above may change depending on the sizing result and assessment of the IT providers. The configurations of other servers should be in line with the proposed solution and should ensure that the requirements are in line with the functional specifications and the bidding documents.

The data centers should be based out of co-location based setup. Both the Principal Data Centre and the Disaster Recovery Centre would adhere to the following:

1. Based of co-location based Tier-3 Data Centers
2. Each location should have two internet service providers with a minimum speed of 20 Mbps. The connections should be wired industry grade Ethernet link and the Communications Backbone should be available to the customer(both office users and operators) free of Network Outages 99.5% of the time.
3. Have adequate security mechanisms, via the following
   a. Secure loading dock,
   b. Finger print activated biometric locking mechanisms,
   c. Man-traps with weight sensors,
   d. Video monitoring,
   e. Password protected access to both physical location and web-portals,
   f. Recorded-in and out logs, and
   g. Other essential security mechanisms.

The principal Data Centre should:

    a. have a backup server for each of the principal servers in an **active-active** mode configuration

    b. have adequate provisions for automatic data backup and archival

The Disaster Recovery Site location adhere to the following requirements

    a. located in a tier 3 based location

    b. situated in a seismic zone different from the principal data center

    c. the Disaster Recovery site should be designed with a **Warm Standby** provision, and should have recovery level of less than 1 minute in case of any failure of the principal data center.

6.2.3 Security, Disaster Recovery & Back-Up

The following table presents the proposed status of various security, disaster recovery and backup mechanisms.

Protection / Measure Count	Status
Back-up power unit	Yes
Software firewall	Required
Subscription to a security service	Required
Security policy/Guidelines	Required
Physically restricted access to critical ICT equipment	Yes
Hardware firewall	Required
Secure servers	Required
Storage of back-up media	Required
Off-site back-up	Required
Encryption	Required
Regular ICT security training of employees	Required
Disaster Recovery Plan	Required
Digital signatures	Required

System Security and backup measures

The configurations discussed above will ensure that the system has adequate security and backup provisions in the future. The co-location site would also need to have adequate security mechanisms, via secure loading dock, finger print activated biometric locking mechanisms, man-

traps with weight sensors, video monitoring, password protected access to both physical location and web-portals, recorded-in and out logs, and other essential security mechanisms.

6.2.4 Data Archiving

The solution would require the data archiving on a regular basis automatically as per the terms of concession agreement. The minimum requirements of the archiving hardware are as following

- <u>Drive options:</u> HH LTO Ultrium 6: 6 Gbps SAS
- <u>Tape cartridge capacity:</u> 9
- <u>I/O stations:</u> One
- <u>Data transfer rate:</u> Up to 160 MBps

6.2.5 Security

The system would also incorporate latest technical solutions, software systems and protocols for security, backup and archival. The solution would have following key features

- <u>Physical Security</u> – Only designated users will have access to server rooms via biometric and related solutions.
- <u>Hardware Security</u> – The solution will have latest security provisions via firewalls and latest hardware configurations and antivirus.
- <u>Data backup</u> – The data would be backed up automatically via the tape drives and well-designed system solutions. The system would also have a dedicated buffer site to ensure backup in case of any eventuality with the main data center.

6.3 IT Application Infrastructure Requirements

6.3.1 Key System Applications

The solution would be developed on internationally recognized ERP system and would deploy a COTS based solution that would provide a secure (https) website based solution. The website would be accessible by internal users as well as operators, and the access right would be different for different categories of users. The key IT applications envisaged in the system are as follows:

- User Registration System: The system would allow users (Operators) to register online after providing their basic detail. There will also be a one-time batch process to automatically register existing users in the new system, and their user ids, and passwords, will be communicated to them via sms, and emails.

- Application Submission System. The system would allow users to submit their applications via an online system. The system would automatically advice the users of amount due with their application. The users will also have an option to submit offline applications, if desired. The system would also migrate all existing applications, along with scanned copy of relevant records, in the new system.

- Revenue Management System. The system would have basic accounting system to calculate the fees payable by the users. It would also generate notices to users regarding the due fees and share the information with them.

- Online Payment System. The system would allow users to submit their payments via an online system. The users will also have an option to make offline payments at the bank, if they so desire.

- Workflow Management System. The system would integrate the business rules with application and present officials with various decision options related to an application.

- Document Management System. The system would automatically integrate various documents within an application. Officers will be able to see the documents pertaining to an application within the online system and take decisions accordingly.

- Business Intelligence System The system would also present senior officials with a dashboard pertaining to application submissions, volumes, timelines and other related reports and thus enable them to take business decisions more effectively.

- System Dashboards. The system would have dashboards for public, LTFRB officials and operators. Each dashboard would display information relevant to the stakeholder. For example, while the public dashboard would display details of various upcoming hearings, the operator dashboard would display information regarding details of upcoming renewal dates of vehicles.

The solution would have the capacity to handle surge of 5 times the current data volume (around 1 million applications annually), though the internet speed in some offices would require upgrade post application volumes exceeding 3 times the current capacity.

6.3.2 One Time Data Conversion

To ensure smooth execution of the project, it is imperative to ensure that the existing data is converted in the new database format. This will be a one-time process that will consist of three major steps,

- rules identification,
- data validation and
- data conversion.

Rule identification will be the preliminary step in the whole process and shall be done primarily by the LTFRB officials. For example, the following process can be used -

- Define the baseline data volume across all LTFRB offices
- Define the rules to identify correct data. For example, the current data in the FPS system could have redundant data and needs to be verified against the dockets. Another instance could be operators who have invalid addresses that need to be verified by sending them letters to verify their addresses.

Data Validation would primarily be performed by the Private Project Proponent in conjunction with the LTFRB. The Private Project Proponent will parse the existing data against the defined rules and submit the report pertaining to data that comply with the defined rules, and the outliers. LTFRB will review and approve the compliant data and suggest guidelines to update the outlier records. The process will be repeated to ensure that an acceptable level of data has been verified against the defined rules.

Data Conversion will be the final step in the whole process and would remain the primary responsibility of the Private Project Proponent. The proponent will execute programs to upload the data in the new database. They would also submit reports regarding data that has been uploaded in the system and the LTFRB will verify the same against the baseline data volume defines in the rule confirmation step to ensure that the identified volume of data has been accurately and completely uploaded in the new system.

6.3.3 Solution Architecture

The following diagram represents the overall layout of IT servers and client systems. The solution includes adequate redundancy in the system design to ensure system availability, for example, it would adopt an active-active server configuration in the principal data center with twin internet service providers at each instance (Data center, DR Center and office locations).

LTFRB IT Solution Architecture
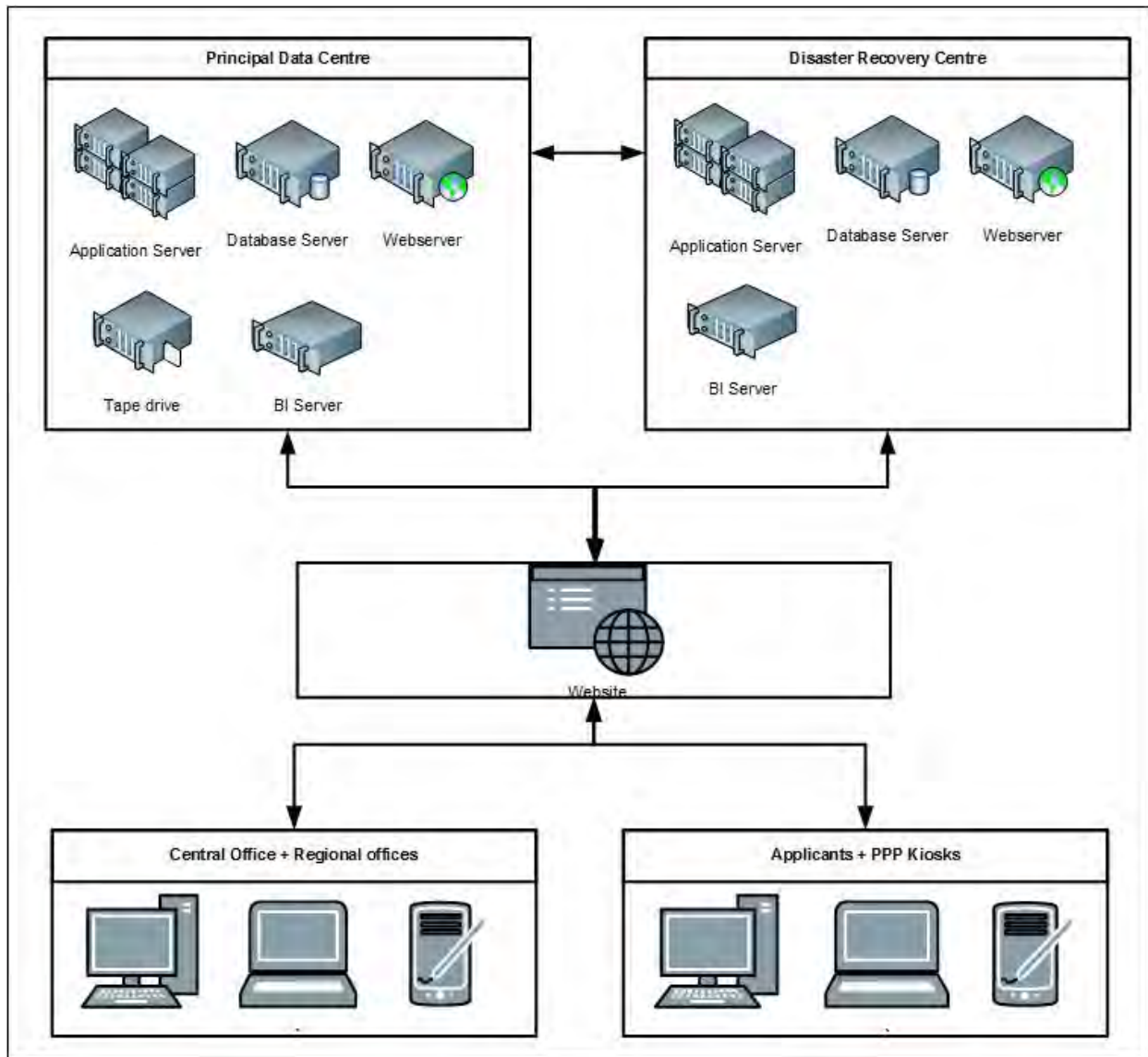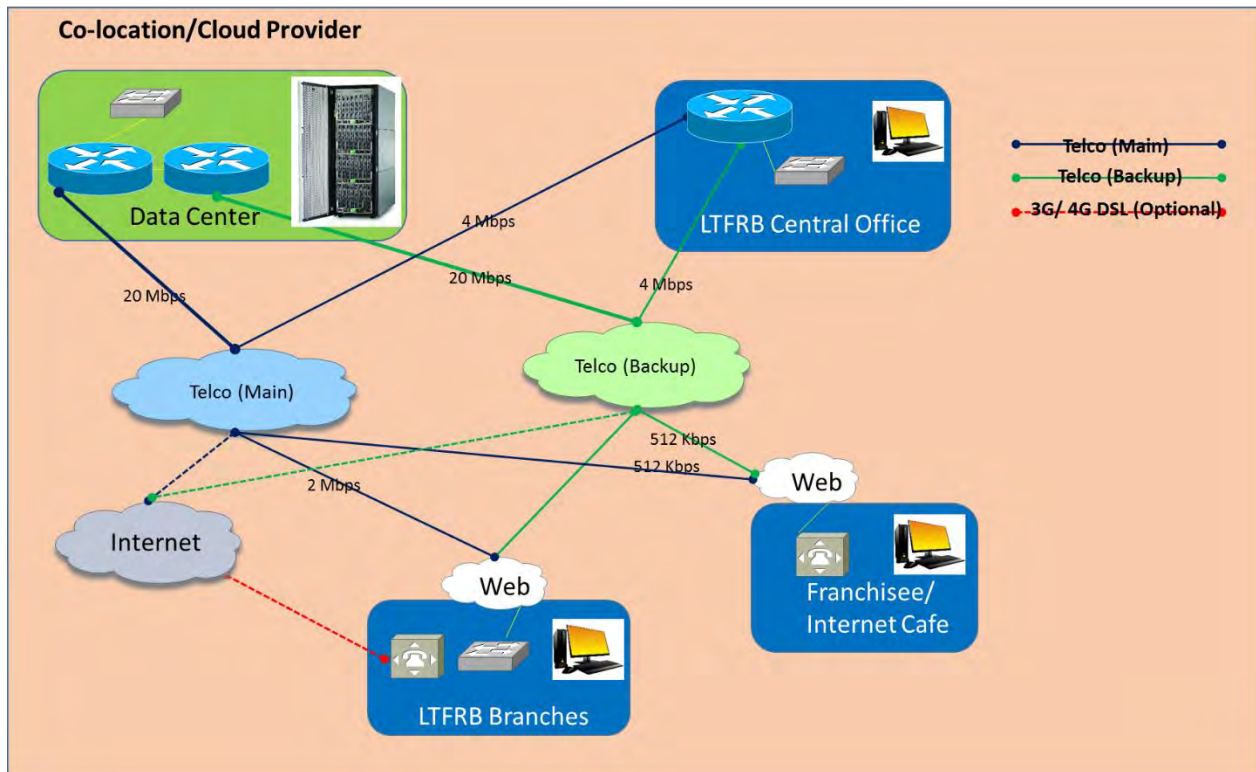
LTFRB Network Architecture

6.3.4 Data Exchange with other departments

Currently most of the data exchange between LTFRB and other departments is manual. In the future, an automatic data transfer mechanism would need to be defined between LTFRB and the concerned department. The exchange could be either offline, or online, based on transmission frequency and data sensitivity. In an online exchange, the concerned departments' database would receive the triggers from LTFRB database and would transmit the required information that would then be received by the LFTRB database. On the other hand, an offline transmission would involve the concerned department sending the data at desired frequency and LTFRB's database processing the information accordingly the following diagram, explains the differences between these two approaches.

Online Exchange	Offline Exchange
• LTFRB database sends triggers to concerned department's database • Concerned department's database recieves request, and generates the required file. • Concerned department transmits the files to LTFRB's database. • LTFRB database recieves the data, processes, and triggers the next steps.	• Concerned department generates the files at preset intervals and transmits to LTFRB. • LTFRB database recieves the data, processes, and triggers the next steps.

Online Vs. Offline Exchange

For data that requires immediate response, an online and instant data exchange would be implemented, while the preferred option for other data exchanges could be offline. For example, if an applicant is paying the CPC fees online, the data exchange would be online between bank and LTFRB; on the other hand payment reconciliation data would be offline at the end of each business day. Another example, could be the requirement of commercial vehicle CR data from LTO. Currently operators have to physically produce the LTO receipt to LTFRB. However, in the proposed scenario, LTO would transmit the commercial CR data to LTFRB at the end of each business day and the LTFRB system would trigger the subsequent steps automatically.

The following table captures data exchanges between LTFRB and various departments. Most of this exchange is manual and departments either furnish the information via hard copy of the document, or the applicant is required to furnish the document. The recommended strategy is based on system readiness of the other department.

Department/ Company	Documentary Requirements	Process required	Proposed data exchange process
Financial Institution	Confirmation of fees receipt and reconciliation data	All processes that require payment confirmation	Automatic
Land Transportation Office	Official Receipt/Certificate of Registration	For multiple processes	Automatic
	LTO Certification of the total number of	Dropping and Substitution of Units for	

Department/ Company	Documentary Requirements	Process required	Proposed data exchange process
	seating capacity	any city operations with EDSA route	
	Certification of the LTO (registering authority) that the unit has not been registered as for hire vehicle	Registration In Lieu Of Authorized Unit	
	Affidavit of Loss and Certification of No Apprehension	In case of lost license plates for Dropping and Substitution of Units Dropping of Units	
Passenger Insurance Management and Insurance Agency (PAMI), SECI Insurance Management Inc.	Passenger Accident Insurance Coverage	For multiple processes	Automatic
Securities and Exchange Commission (SEC)	Amended Certificate of Incorporation under the amended name	For corporations applying for Change of Civil Status Correction of typographical error – Trade Name	Existing manual Process (to be made automatic on a priority)
	Certificate of Good Standing	Corporations applying for: New Certificate of Public Convenience Extension of Validity Amendment of CPC	
	Audited Financial Statement of the preceding year	Corporations applying for: New Certificate of Public Convenience Extension of Validity Sale And Transfer Of Franchise Including The Unit	
Bureau of Internal Revenue	Income Tax Return	For a Corporation/Partnership/Individual applying for New Certificate of Public Convenience Extension of Validity Sale And Transfer Of Franchise Including The Unit	Existing manual Process (to be made automatic on a priority)
	Tax Clearance	New Certificate of Public Convenience	

Department/ Company	Documentary Requirements	Process required	Proposed data exchange process
		Extension of Validity	
Department of Transportation and Communications	Route Measured Capacity (RMC) Certification	New Certificate of Public Convenience Amendment of CPC	Automatic
	DOTC Endorsement Letter	New Certificate of Public Convenience for Tourist Transport Service	
Other Processes			To be decided by the LTFRB

6.4   Minimum Performance Standards and Specifications

The Minimum Performance Specifications of the system have been categorized in three categories, Perceived System Requirements, Perceived User Experience and System Requirements.

The Perceived System Requirements refer to the system behavior as perceived by the end users – LTFRB employees, applicants and the general public. The performance would be measured via the system logs available during system operation and during the initial and periodic load testing of the system. The key parameter in the category would be the System Uptime, or the Availability of Service to the end users, and the same should have a minimum value of 99.5% on an annual basis. The information can also be measured via the website uptime and the value should again be 99.5% on an annual basis. The system should also ensure that minimal number of users are denied service due to latency or overload at the server end, and the value should not exceed 1% on an annual basis. To ensure these levels of services, the solution should be based out of co-location based Tier 3 Data Centre and Disaster Recovery Centre. The data centers and disaster recovery locations should also have internet speed of 20 MBPS, while the Central office and NCR office should have internet speed of 4 Mbps and other regional offices should have a speed of 2 Mbps. Each location should have two internet service providers to ensure redundancy and the connections should be wired industry grade Ethernet link and the Communications Backbone should be available to the customer(both office users and operators) free of Network Outages 99.5% of the time.

The perceived user experience refer to the experience of end users – the operators as well as the employees. To define a user friendly application and to ensure that users are able to access it without issues, it is imperative to capture this information. To capture the operator experience, they should be randomly presented with a survey post their website usage. This information entered should be captured in an independent user experience solution, and should be accessible to LTFRB without intervention of the Private Project Proponent. Similar mechanisms should be employed to capture the information from the LTFRB employees.

System requirements are the backbone of the system performance and are required to ensure that the system captures accurate results, produces accurate reports and has adequate continuity provisions. Key parameters in the category would include adequate database capacity against future requirements, conversion of existing records to the new database and matching the entered information against the database values. The information can be measured via system logs and stress testing. The system should be able to convert entire existing data in the new format. The data elements that cannot be converted should be reported to LTFRB and the operator needs to have a buy-in from LTFRB regarding issues with data sanctity. The system should also be able to capture 100% of the data entered by the users in the new database and there should be no discrepancy between information entered and information captured. The system should also have a 100% matching between operator records and the scanned documents. The servers should have the capacity to handle surge of 5 times the current data volume, though the internet speed in some offices would require upgrade post application volumes exceeding 3 times the current capacity.

The following table provides a detailed description of the key system SLAs, their expected values and the source to get the values pertaining to each SLA. The table is an indicative of expected outputs from a user perspective, and a detailed description of MPSS requirements will be provided in the Concession Agreement.

Area	Metrics	Minimum Performance Standard	Source
Perceived System Performance	Availability of service	99.5%	- System logs - Load testing results (one time and periodic)
Perceived System Performance	Website uptime	99.5%	- System logs - Load testing results (one time and periodic) - monitoring solutions
Perceived System Performance	% of users denied service	1.0%	- System logs - Load testing results (one time and periodic)
Perceived User Experience	Operator Experience with website	80.0%	- Customer Satisfaction Survey
Perceived User Experience	Employee satisfaction	90.0%	- Employee Survey
System Performance	Database scalability	5 times	- System logs - Load testing results (one time and periodic)

Area	Metrics	Minimum Performance Standard	Source
System Performance	Desktop availability	95%	- Reports by end users
System Performance	Network Scalability	3 times	- System logs - Load testing results (one time and periodic)
System Performance	Data Conversion of existing data	100.0%	- Report submitted by Private Project Proponent to LTFRB - System logs
System Performance	Capturing of user entered information	100.0%	- System testing and user testing results - Random samples

MPSS Table

7. Project Structure

The Project is envisaged to be implemented on Build-Transfer-Operate (BTO) mode of public private partnership. In this, the Private Project Proponent would be required to undertake supply, installation, operations and management of IT Infrastructure and provide pre-determined bandwidth, uptime and service levels and assume development related risks arising from cost overruns, delays and other performance risks connected to implementation of the IT infrastructure.

Once the project is implemented / installed satisfactorily, the Private Project Proponent would transfer the legal ownership of IT Hardware Infrastructure (e.g. servers & server networking infrastructure) and IT Software (source code, IP rights) & application database as well as the physical ownership of part of IT Hardware Infrastructure (e.g. Desktops, Laptops, Scanners, Printers, UPS, routers and core switches) with LTFRB and keep the right to operate and maintain the IT infrastructure till the end of the concession period, and thereafter the whole IT infrastructure will be transferred to the LTFRB pursuant to the terms of the Concession Agreement.

Terms of Payment

As a form of repayment for financing, installations, operating and maintaining the IT Infrastructure, the Private Project Proponent would be made Availability Based Payments on a monthly basis.

Responsibility of the Implementing Agency

The implementing agency for this project would be the DOTC and the LTFRB. For this Project, the DOTC and LTFRB envisages to make availability based payments to the Private Project Proponent, provide office space to its 17 professionals for 1 year (within the premises of LTFRB offices at each of the 17 locations) and one half of the cost of Project Management/ Independent Consultant (PMC/ IC). It will also tie-up with its bankers to provide on-line payment facility to the operators. LTFRB would also identify rules for data validation and confirm that entire volume of existing data has been migrated accurately.

The LTFRB would retain the right to charge User Fees from the Operators/ Franchises directly. The Private Project Proponent will not be authorized to charge any fees from the Operators/ Franchises/ end users.

Concession Period

The Concession period would be 11.5 years, including 1.5 years for the application development and installation period. Broadly, the capital expenditure, operational expenditure and the debt repayment associated with the project forms the main sources of outflows for the project.

The principal terms and conditions governing the transaction would be covered in the Concession Agreement, which provides for the obligations of the LTFRB and the Private Project Proponent in respect of the development and operation of the IT infrastructure, and other mutual undertakings, covenants and conditions to be performed or fulfilled by each of the parties.

8. Annexures

8.1   Annexure-1: List of LTFRB Offices

Central Office:

Address: East Avenue, Diliman, Quezon City 1100 Philippines

Phone: (Public Assistance) : 426-2515

Regional Offices:

1.   LTFRB NATIONAL CAPITAL REGION

Address: East Avenue, Diliman, Quezon City 1100 Philippines

Phone: +632 4925-73-67, +632 929-67-89, +632 929-73-66, +632 926-63-46

2.   DOTC-CARAGA

Address: Butuan City

Phone: 341-23-80 , 360-20-10 , 360-20-06

3.   DOTC CORDILLERA AUTONOMOUS REGION

Address: DOTC Cordillera Administrative Region, Baguio City

Phone: (074) 444-99-38, (074) 304-24-35

4.   ARMM

Address: NTC Bldg., ORC Compound, Cotabato City

Phone: (064) 421-17-67

5.   LTFRB REGIONAL OFFICE NO. I

Address: Government Center, Sevilla, San Fernando City, La Union 2500

Phone: (072) 700-50-39, 700-41-97, 888-43-56

6.   LTFRB REGIONAL OFFICE NO.II

Address: CARIG Regional Center, Tuguegarao, Cagayan 3500

Phone: (078) 304-79-05, 304-14-39

7. LTFRB REGIONAL OFFICE NO. III

Address: Government Center, Maimpis San Fernando Pampanga 2000

Phone: (045) 961-7046

8. LTFRB REGIONAL OFFICE NO. IV

Address: Saturnland Bldg., Fiesta World Mall Marawoy, Lipa City 4217Reg. 4

Phone: (043) 756-1520

9. LTFRB REGIONAL OFFICE NO.V

Address: Regional Center, Rawis Legazpi City 4500

Phone: (052) 482-1500, 82-15-15

10. LTFRB REGIONAL OFFICE NO. VI

Address: VI Quintin Salas, Jaro, Iloilo 5000

Phone: (033) 329-4385

11. LTFRB REGIONAL OFFICE NO.VII

Address: LTFRB Regional Office No. 7 J. King Bldg., Jose L. Briones St., North Reclamation Area, Cebu City

Phone: (032)- 231-74-66 (Dir), 232-60-74, 231-15-24 (CTDO), 231-99-31 (Admin), 231-62-21 (Legal)

12. LTFRB REGIONAL OFFICE NO. VIII

Address: ipa Hut Compound, Jones St.,Tacloban City 6500

Phone: (053) 325-7853

13. LTFRB REGIONAL OFFICE NO. IX

Address: A. Macrohon Bldg., Baliwasan Chico Zamboanga City 7000

Phone: (062) 991-7889

14. LTFRB REGIONAL OFFICE NO. X

Address: VII Yap Bldg., Hernan Cortez St.,Manduae City, Cebu 6014

Phone: (032) 231-7466

15. LTFRB REGIONAL OFFICE NO. XI

Address: Balusong Ave., McArthur Hi-way Matina, Davao City 8000

Phone: (082) 297-018

16. LTFRB REGIONAL OFFICE NO. XII

Address: ARMM Compound (bet. NFA & NEDA Offices) Cotabato City 9600

Phone: (064) 90-13-87